USING THE LANGUAGE LABORATORY TO DEVELOP THE LISTENING ABILITY OF ADULT LEARNERS OF ENGLISH BY MEANS OF PRACTICE IN THE PERCEPTION OF STRESS

by

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A thesis presented for the Degree of
Doctor of Philosophy

University of Edinburgh

May, 1981.

ABSTRACT

This thesis is concerned with specific aspects of two general problems : firstly, the inability of teachers and students to utilize the potential of the language laboratory to maximum effect, and secondly, the inability of many learners of English to acquire a confident understanding of spoken English.

The language laboratory was designed as a class teaching aid according to certain principles of language learning and its use is limited and defined by the facilities it provides and the conditions upon its use. Since supplementary use of the language laboratory may lead to under-exploitation of facilities, there needs to be investigation into areas of language training, suggested by current research in related fields, in which the language laboratory can play a fully integrated training role.

Recent work on speech perception and child language development suggests that stress and rhythm, as prosodic features, are important perceptual factors in the rapid and efficient understanding of connected English speech, and, consequently, that an absence of accurate stress perception may reduce the listener's decoding ability. An attempt is made in this thesis to develop materials for training in stress perception, and to test techniques for their exploitation which are especially suited to use in the language laboratory.

The thesis begins with a consideration of problems and aims, and than continues in Chapter Two with a review of the main issues regarding language laboratory use found in the literature. There then follows a discussion on the exploitation of specific facilities offered by the language laboratory, and the conditions upon their successful use. In Chapter Three, teacher and student use of the language laboratory is observed and assessed in live sessions in four language schools in Britain.

The following two chapters, Chapter Four and Chapter Five, are concerned with the perception of stress and rhythm, and its role in understanding connected English speech. After a brief review of the literature and research on models of speech perception and understanding, and on child language development, in which their relevance to second language learning is discussed, recent research is presented, which indicates the importance of stress and rhythm in the accurate decoding of connected speech. Its bearing on second language training is considered, together with the problems of testing listening comprehension. There follow the reports of a series of experiments in which the ability of native speakers and learners of English to perceive and produce different spacing and pacing patterns of stress was tested, as well as the effect of varying the spacing and pacing of stress on the understanding of connected speech.

The next two chapters, Chapter Six and Chapter Seven, link language laboratory use and stress perception in the design of a battery of materials, the purpose of which is to train learners in the perception of stress at word and utterance levels. The battery, in the form of a complete course, is then tested in order to assess its value in improving listening comprehension ability in learners of English, and the degree to which it exploits language laboratory facilities.

The final chapter, Chapter Eight, attempts to relate the conclusions formed to the larger process of receptive and productive language development within the language laboratory context, and to the place of the stress perception materials in a complete language course.

DECLARATION

The work presented in this thesis is my own.

Robert N. Vanderplank

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ACKNOWLEDGEMENTS

In carrying out the research reported in this thesis, and in devising the materials which are the practical outcome of the research, I have inevitably drawn on a large number of sources for practical help and advice.

First and foremost, I should like to thank my supervisors, Dr. Alan Davies and Mr. A.P.R. Howatt, the former for his unfailing encouragement and sound advice over the last six years, and the latter for his invaluable scepticism and detailed criticism of drafts, the results of which, it is hoped, will be evident in the final version presented below.

For the section of the thesis concerned with language laboratory use, my thanks must go to Mr. Peter O'Connell, Principal, and the staff and students of the School of English Studies, Folkestone, Kent; to Mr. John Webb, Director, and the staff and students of the Colchester and Bedford Study Centres, and to Dr. James Day, Principal, and the staff and students of Davies' School, Cambridge.

For providing both subjects and facilities for experiments, my thanks are due to Mr. Michael Halstead, former Representative, British Council, Morocco, and to Mr. Anthony O'Brien, Director of Studies, and the staff and students of the British Council Language Centre, Rabat, Morocco; to Mr. Peter Fabian, Principal, and the staff and students of the London School of English, London; and also to Dr. Clive Criper, Director, Mrs. Yvonne de Henseler, Course Director, and the staff and students of the Institute for Applied Language Studies, University of Edinburgh. I must also not forget those individual native speakers who agreed to take part in experiments.

For the Test Course, I am deeply indebted to Mr. Hugh Walker and to the staff and students of the Department of English as a foreign language, Stevenson College, Edinburgh, and for helping to record materials used in the Test Course, I am also indebted to Miss Kate Brown and Mrs. Elizabeth McClelland.

Within the University of Edinburgh, I have consulted or called on the services of a very large number of people in many departments who have always given me their time generously and patiently. In particular, I should like to acknowledge the help of the technical and computing staff of the Linguistics Department, and especially Mr. S.L. Stephen, Mr. Norman Dryden, and Mrs. Irene Macleod. Other members of the Linguistics Department to whom I am extremely grateful are Mrs. E.T. Uldall and Ms. Anne Anderson.

It is unlikely that this thesis would have been completed at the present time without the support of a Faculty of Arts (Vans Dunlop) Scholarship, and, later, the contributions from the Hornby Trust and the Platov Fund. I should like to express my appreciation for this financial support.

Lastly, I should like to express my gratitude to all those who have helped me in the last, hectic, stages of this thesis, in particular, to Mrs. Margaret Love, for typing the thesis, and to all my close friends and colleagues for making it such an enjoyable experience.

Chapter One. Preliminary Considerations : Problems and Aims

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1.1 Introduction

The two problems which the present work investigates are, firstly, the inability of teachers, learners, administrators and others to utilize the potential of the class language laboratory to maximum effect, and, secondly, the inability of learners to break through to complete confidence in understanding spoken English, to tune in, as it were, in all but a small proportion of cases.

These two themes came together within the same framework of time and experience for the author, while serving as Director of Studies at the British Council Language Centre, Rabat, Morocco, and have, since then, been shown repeatedly to have a close affinity with one another. It was in Rabat that the author's experience of language laboratory use by teachers and students reached a new low point, and where the problem of improving the listening comprehension ability of advanced students preparing to take the Cambridge Proficiency examination appeared to be the weakest aspect of otherwise satisfactory development in English language over five or six years of steady and continuous part-time study.

It seemed aberrant to the author that those of us involved in the teaching of English as a foreign language should not be able to demonstrate explicitly and convincingly the advantages of using the language laboratory (LL), and equally aberrant that we should not be able to provide learners with programmes for the genuinely guided development of listening comprehension, other than by heuristic means or by massive exposure to spoken English, with no guarantee of lasting, confident proficiency.

Both the language laboratory and listening comprehension seemed to require urgent attention in the form of practical research, in order to

identify the causes of the failure to exploit the language laboratory and to develop listening comprehension systematically, and in order to test possible methods for eliminating some of the causes.

1.2 Rationale and Objectives of the Thesis

This thesis falls into three parts. The first two parts are concerned with the two problems described above, and the third part aims to link them in the common theme of designing a systematic, guided, self-critical, self-evaluative training course. This course is needed, on the one hand, for the development of listening ability, and is provided, on the other hand, by the language laboratory in the specialised exploitation of materials.

It was felt to be important, firstly, to investigate the LL in its own right as a training tool for language development. While the LL may appear to have declined in popularity in recent years, especially with the emphasis on the communicative rather than the articulatory or manipulative aspects of language control, there is no doubt that LL's are still widely used throughout the world. Since a new twenty four place language laboratory with full facilities is a large expense in any budget, the LL is not a tool which can be treated lightly or taken for granted as simply another teaching aid, and the size of the literature (reviewed in Chapter Two) testifies to the amount of debate that its use has generated over the past twenty five years.

Since so much has been written on LL, it was considered that there was a need for an investigation of actual LL use by teachers and students, not only as a means of assessing the value of advice in practical terms, but also for analysing materials, techniques and activities as relevant to LL exploitation. This would, then, provide an independent framework within which materials designed specifically for use in the LL could be

assessed. It was surprising to the author that no such framework already existed, that there was no method of assessing LL use except by external comparisons in terms of results, and that no framework existed within which LL use by teachers and students could be objectively evaluated.

Perhaps one of the problems in this regard is that teachers (in the Humanities, at least) tend to be mechanically unsophisticated. The author's own experience in Morocco indicated that many teachers fear not only LL's but even tape recorders as potential sources of disaster. It is therefore hardly surprising that for the majority of teachers, the LL has neither produced the expected results (in faster, more efficient language learning), nor have its faults been fully analysed or remedied. It is inconceivable that such a situation would remain unchanged in the cost-conscious and technically minded environment of commerce or industry some thirty years after the initial development of a machine. Since technical sophistication and measures of cost-effectiveness are rarely evident in the purchase and use of LL's, much of what has been written about the pitfalls and potential benefits of LL use has remained largely unapplied over the past thirty years.

The basic problem of the second theme - the inability of learners to break through to proficiency in listening - was where to begin. Should the problem be treated as remedial or as basic ? Was it possible to identify and isolate specific causes which could be remedied by appropriate means, or was it a larger, more complex and integrated problem ? Was it a low level processing problem at the psycho-motor level, or was some higher level cognitive skill involved ? As with the case of LL use, there appeared to be relatively little in the literature on the specific problem, and the eventual means of teasing out the problem lay outside the immediate literature and research. It was thought that this part of the thesis, on

the role of stress perception in listening, had to be supported by empirical evidence from experimentation with learners under realistic conditions. While native speakers could form a control group or point of comparisons with learners, the experiments had to be directly on learners of English if results which could indicate appropriate materials and techniques for training learners in aspects of listening comprehension were to be gained.

The third part of this thesis, linking LL use and the role of stress perception as a factor in the development of listening comprehension, is essentially the focus of the work. The aim of the two earlier parts was that both the LL as a useful training tool, and training in stress perception as an important factor in rapid and efficient understanding of spoken discourse should stand independently, as it were, and thus should be capable of exploiting one another to mutual advantage. We wished to avoid it being said that we have simply searched for a means of justifying the exploitation of the LL, or that it is only in the highly restricted forms of practice provided by the LL that stress training is important. Since LL utilization and the role of stress perception in listening are independent of one another, the framework of LL use can be used as a guide for the design criteria of the materials, and conversely, the LL can be assessed as a tool for training learners in stress perception.

1.3 Structure and Plan of the Thesis

The plan of the thesis with regard to chapters and content is as follows:

Chapter Two. Principles of LL use and their applications I. : a review of the literature and research on the use of the language laboratory. This chapter begins with a discussion of the principles of LL use and the

implications for language learning theory and practice. The application of these principles is then discussed in terms of the design features and facilities of the LL, the conditions consequent upon the use of the LL as a class aid, and the materials commonly used and activities carried out in the LL. Research is proposed on the analysis of LL use by teachers and learners based on the fulfillment of conditions of use and the exploitation of LL facilities in terms of self-pacing, self-responsibility and self-criticism.

Chapter Three. Principles of LL use and their applications II. : a study of LL use in four language schools. In Chapter Three, live use of the LL by teachers and students is assessed in four language schools applying the criteria discussed in Chapter Two. The outcome of the study suggests that the LL is best exploited by materials and techniques which allow for maximum self-instruction in terms of self-pacing, self-criticism and self-responsibility, and which are not necessarily limited to structure drills, dialogue repetition or pronunciation practice. It is felt that regardless of the materials, effective exploitation can only be achieved through a complete training of teachers and students in the conditions consequent upon the use of the LL and in the use of facilities, and through regular and integrated use of the LL. The study also indicates that the use of the LL as a supplementary aid to cognitive-type materials and methods leads to under-exploitation and under-utilization of LL facilities.

From the suggestion in Chapter Three that there are non-cognitive areas of the listening process which are poorly developed in language learning and in current materials, but which might be investigated as appropriate for LL training, in Chapter Four. The perception of stress and rhythm as a factor in the understanding of connected speech - a review of the research and literature, firstly, models of speech perception are

reviewed and discussed in terms of their relevance to language learning as developmental models. Next, research on the development of speech perception in children is briefly reviewed, and in particular, the development of stress and rhythm as perceived by children. The role of stress and rhythm as perceptual factors in the understanding of connected speech is then considered, and special reference is made to isochrony as a perceptual phenomenon in English, and to its role in the unambiguous decoding of syntax. Lastly, the problems of measuring listening comprehension are discussed and the proposal is made that listening should be seen as a combination of the hearer's ability to follow the language of the message (referred to as 'intelligibility') and the hearer's ability to process the overall meaning or argument (referred to as 'understanding').

In Chapter Five. The perception of stress and rhythm and its role in understanding connected speech : reports of experiments, three experiments are reported which investigate the following: stress as a feature of native speaker perception of connected speech; 'regularisation' of main stress as a means of simplifying the perception of stress in connected speech for learners; the status of stress perception in relation to syntax and in relation to the level of language knowledge of learners; and lastly, the effect of varying the spacing and pacing of stress on the ability of native speakers and learners to follow and understand connected speech.

In Chapter Six. The design of materials for training in stress perception and production, from the results and implications of the experiments in Chapter Five, a battery of materials is presented, the purpose of which is to train learners in the perception of stress at word and utterance levels, using materials and techniques designed to exploit the dual-track master/student facility of the LL through

the active matching of stress as perceived by the learner with the stress of the master recording.

Lastly, in Chapter Seven. The effect of a course of materials for training in stress perception and production on the listening comprehension ability of adult learners of English. A report on a comparative study, materials from the battery described in Chapter Six are formed into a course and are tested in order to ascertain whether the materials and techniques do exploit the LL facilities in terms of self-pacing, self-responsibility and self-criticism, and whether the listening comprehension ability of learners is improved by such a course. A summary of the findings and a discussion followed by conclusions are given in Chapter Eight.

Chapter Two. Principles of language laboratory use and their application I : a review of the research and the literature on the use of the language laboratory.

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2.1 Introduction

The language laboratory (henceforth: LL) as an installation consisting of centrally linked tape-recorders each with a recording head configuration permitting master/student recording and simultaneous playback owes its initial development to a combination of American structural linguistics applied to language teaching (largely by Fries in the 1940's: Fries, 1945), behaviourist psychology, and technological and entrepreneurial skills (Hocking, 1964). The outcome of the negotiations between engineers, applied linguists and language teaching professionals in the United States, the audio-active-comparative language laboratory[1], was to be seen in Great Britain and Europe by the late 1950's and early 1960's. While the role of the LL in the United States was specifically that of the drill-master in the audio-lingual approach, and its use was to shape correct phonological and syntactic speech habits as defined by the basically behaviourist model of language learning, in Britain and Europe its use complemented the shift in emphasis from the written to the spoken word in modern language teaching, which had in turn been greatly influenced by the Direct Method introduced several decades earlier (Christophersen, 1973; Strevens, 1977). This

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1. By audio-active-comparative LL is meant that type of LL which has full student recording and playback facilities with full student and master track controls, so that the learner can compare his performance with that of the recorded model.

complementary use was (and still is) basically pragmatic, and the criteria might be those of usefulness, pedagogical or administrative necessity (i.e. demanded by a specific approach, as was the case in the United States, or by a shortage of staff), student demand, or unsupported claims for greater efficiency or rapidity of language learning.

In both the United States and Europe, the teaching of the spoken language was aided by records and later by tapes, which provided a constant, authentic variety of spoken models, and by the LL, which has been seen as playing an essential part in alleviating the strains caused by the expansion of modern language teaching, particularly in the United States in the late 1950's[2]. The complex relationship of these two factors, the advantage for the learner of the untiring practice model on the one hand, and the practical (and perhaps only short-term), administrative advantage for the teacher or planner, on the other, has frequently obscured many of the issues that the use of the LL has raised in the theory and practice of language learning. As we hope to show in this chapter, the practice advantage has produced many problems and paradoxes in the literature, and the administrative advantage has appeared at times to undermine and contradict the practice advantage.

In this chapter, we shall firstly discuss the principles of LL use and the implications for language learning theory and practice. We shall then review the literature and research with regard to the design features and facilities of the LL and the conditions that writers and researchers have placed upon its use by teachers and learners. We shall also examine the research on the effectiveness and the outcome of LL use, and discuss

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2. That is, after the National Defence Education Act of 1958.

alternative approaches to assessing LL use in terms of facilities and use of materials.

2.2 Principles of LL use as a class aid and theories of learning and language learning

Jakobovits sums up the limitations of theory for practical teaching as follows:

> "It would seem to be a betrayal of the intellectual spirit to accept that which works when it should not, yet it would be folly to reject that which works because on theoretical grounds it ought not." (Jakobovits, 1970 : 34)

Carroll is also suspicious of the links proposed between learning theory, language learning theory and language teaching:

> "..... neither the audio-lingual habit theory nor the cognitive code learning theory is closely linked to any contemporary theory of learning." (Carroll, 1966 : 104)

The main issue at the theoretical level appears to be whether the LL as a class aid[3] is tied to a behaviourist theory of language learning and an audio-lingual or structural approach to language teaching, whether the LL can be successfully exploited by those who hold teaching principles and goals of language learning influenced by a cognitive view of language learning, or whether it is possible to hold a theory neutral, pragmatic view of exploitation.

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3. At this stage it is necessary to differentiate between the LL as class aid and the LL as part of a library system. We shall be concerned primarily with the LL as a class aid, as we regard the library as a simple multiplication of single or dual track tape or cassette recorders with a large stock of pre-recorded tapes. The class LL with its intercom system, the tendency for programmes still to be broadcast in lockstep, the individual yet simultaneous nature of the practice, the maintenance of the group or class - all these make the class LL fundamentally different in concept from the library system, as different as the concept of library books is different from class textbooks.

In this argument, the question of the type of practice the learner will receive is central. Constant, massive practice in speaking and listening is the essential rationale behind the use of the LL. The question remains whether full use and exploitation of the LL as a class aid implies a type of practice which is the expression of a particular language learning theory or whether the multi-factor nature of the language learning process, and the generally low level of our understanding of the process indirectly support a pragmatic and theory-neutral use of the LL. While favoured theories of language learning and approaches to language teaching may have changed over the past twenty-five years, the LL has remained basically unchanged[4] in design and function. What we see in the literature, therefore, is a movement of the LL from a central position justified by theoretical claims, to one often so far on the periphery of the language teaching programme that innovation and ingenuity are needed in designing materials for its continued use to be even marginally justified. Dakin (1973) makes this point clear when favouring a cognitive + library approach to LL use. His rejection of the LL as a class aid is inevitably tied to his rejection of meaningless drills and the pattern practice of the audio-lingual approach and the habit-formation theory and to his criticism of their criteria for success in language learning.

Locke (1960), however, argues that students can be asked to perform activities which are simply too difficult. Structure drills and pattern practice in careful sequence were attempts to simplify the complexities

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4. There have of course been improvements in reliability and performance thanks to cassettes and micro-electronics, and innovations such as high speed transfer, but the LL remains basically the same tool as originally designed.

by separating form from the complexities of meaning and function, so that the forms could become part of the student's language through the effect of massive practice and could then acquire appropriate meanings and functions as a further development. The central role of the LL in this approach is obvious. On the other hand, while no one has yet argued that the linguistic complexities of a semantic or functional/notional syllabus[5] are any fewer or less difficult than other types of organisation, there is a body of psychological and pedagogical opinion which suggests that learning with a cognitive and semantic bias may produce the best results. Carroll (op.cit.) puts forward the view that verbal learning is facilitated if confusing items are contrasted in a variety of patterns, meaningfulness is stressed, visual aids are used, full and explicit explanations are given and a wide range of analogies and associations provided. Mackey (1965) suggests a similar list, adding incentive and interest, integration, and rote memory learning and trial and error activities for children. Rivers (1968) argues that there is a place for all types of learning depending on the level of the learner, and that there must be a constant interplay of learning by analogy and by analysis according to the nature of the operation that the student is learning. Dakin (op.cit.) clearly thinks that best results are to be gained from treating learning as a rule-based, meaningful, functional activity[6].

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5. Wilkins (1976), for example, uses the arguments of relevance and meaningful, useful communication.

6. Dakin's attitude is clear from the following: "Structural patterns, according to the behaviourist, can be learnt by repetition and drilling. They are a matter of purely mechanical habit formation. But we have seen that despite intensive drilling the learner may fail to see the rule that controls the form and variation of the structure. Perceiving a rule is not a mechanical task. It requires intelligent observation. The cognitive teacher gives the learner experience of the language through listening practice ....." (1973 : 22).

The issue is then whether the LL as a class aid must be linked specifically to a behaviourist view of language learning, a structuralist approach to grammar, and pattern practice or similar methods of learning, as many writers and methodologists (e.g. Marty, 1960; Hocking, 1964 ; Hayes, 1968; Stack, 1971) would have it, or whether the position of other methodologists (e.g. Mackey, 1965; Rivers, 1968; Turner, 1968; Dakin, op.cit.) is tenable when they refuse to conflate the LL with any particular theory or method, maintaining that aids or equipment should be used if and when and in whatever way they help the learner.

2.3 Technological and pedagogical constraints on LL use

Central to the issue of LL use are factors concerning the limitations of LL equipment and pedagogical constraints. For example, the LL is a comparatively expensive and capital intensive piece of equipment, the very presence of which tends to oblige teachers to make use of it. Furthermore, it has design features and facilities which make it well-equipped to perform some tasks and ill-equipped to perform others. Essentially the LL is a programmable, electronic or electro-mechanical linear teaching aid. It cannot communicate with the student, it can neither analyse the student's performance nor be flexible in its response to the student. In other words, it has many limitations in its design features compared to the class teacher[7]. Thus methods and materials for use in the LL must have the potential to:

i. fully exploit the facilities offered by the LL;

ii. minimise and even capitalise upon the above constraints and limitations of the LL[8].

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7. Teachers, however, become tired, especially using the teacher-active audio-lingual and Direct Methods.

8. Of course, the limitations may be only apparent, and in fact be the reverse.

According to Hocking (1964 : 30):

> "utilization of materials and equipment is an infallible key to the description of teaching method".

Utilization of the LL is in one sense paradoxical. The LL can give practice in listening and speaking on an individual yet simultaneous basis. The type of practice that the student should have is not necessarily related to what the LL can actually do, though certain approaches to teaching and learning propose a very close relationship. Hayes (1968), for example, sees LL practice in the following terms:

> "Practice is, then, essential to understanding and speaking a foreign language. A competent teacher who makes the best possible use of classroom time, and has access to good materials, can, indeed, successfully provide the practice required. But it is difficult, often exhausting, for a live teacher to provide countless repetitions, the constantly authentic model and the carefully sequenced progression of drills which efficient practice requires. To provide this practice is the fundamental role of the LL." (1968 : 15, Hayes' underlining)

Hocking (1964) had earlier made a similar contribution:

> "Function. The language laboratory made it possible to ..... drill effectively. This means qualitatively, setting good speech habits and avoiding wrong learning ....." (1964 : 24-25)

These quoted and others such as Stack (1966, 1971) stress the importance of the conditioning aspect of the LL and of overlearning in order to produce correct 'linguistic habits'. The paradox mentioned above appears since it is clear that cognitive, critical faculties as well as psycho-motor manipulative ones were to be brought into play in the use of the LL. Pattern practice, drilling, repetition, manipulation of structures may have formed the battery of materials used to induce specific verbal behaviour,

but, at the same time, if the LL in its standard audio-active-comparative (henceforth AAC)[9] form was to be exploited successfully, the teacher had to prepare specific LL sessions carefully, orientate learners and give specific learning objectives, and, most important, consciously hand over control, and therefore responsibility for learning, to the learners. Although the role of the LL, its place in the teaching programme, the nature of the materials and the results produced by its use may all be matters of contention (and which will be discussed in the following sections), writers with very varied views on the above issues (e.g. Rivers, 1968; Hayes, op.cit.; Stack, 1971; Turner, 1968; Hilton, 1964) all stress the need for extensive and explicit training in LL use for teachers and students, so that they can benefit from its self-critical, self-evaluative and self-pacing facilities. The LL design, in theory at least as we shall see in the following section, increased the potential for student self-evaluation and self-criticism, even if using an audio-lingual approach meant that this remained at phonological and syntactic levels in most materials.

2.4 Issues in the literature and research concerned with optimum utilization and exploitation of LL facilities

Following Hocking's advice (see section 2.3, p.16), we shall now consider the issues concerning the utilization of equipment and materials in order to examine in what ways the literature and research has taken both theory and principles of use into account, and to assess to what extent the LL is a case of expensive equipment designed with a specific purpose in mind being used for minor or peripheral tasks which it does quite well[10].

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9. See Note 1, above, for a description of the AAC LL.

10. The sub-title of a paper given by the author at Mextesol 1980, Acapulco, Mexico, namely, 'Rolls Royce bumpers make very good bottle-openers' indicates our concern with this point: the appropriate use of the LL in terms of the full exploitation of facilities incorporated in the design.

The issues in the literature and in research fall into several problem areas which inevitably affect one another and overlap at times:

- How best to utilize materials and equipment and under what conditions ?
- What type of practice is most effective and for what levels ?
- Does the LL produce better, faster and more satisfying language learning than alternative aids, or no aids ?

2.4.1 The role of the LL in the teaching programme : integrative use vs. supplementary use

There is general agreement in the literature that the LL does not constitute a method, but is simply a tool (e.g. Rivers, 1968; Stack, 1966 & 1971; Turner, op.cit.). Furthermore, in using it we need to identify the priorities which justify how much it is used and how integrated or central a role it plays in the teaching programme. It cannot teach[11], it can only provide massive practice after the teacher-student interaction and to gain benefit, materials and methods must be carefully judged as to their appropriateness for use in the LL. The Department of Education and Science (1968) takes a broader view of the role of the LL, giving the purpose of the LL as not only practice, but also teaching (and testing). Marty (1960) considers that the LL is best used simply for reviewing material presented in class and only in addition to normal classes. The LL companies have, in his opinion, played an important role in the spread of the LL for class use. In general, however, the opinion expressed is

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11. There are of course several programmed courses for use in the LL, and the LL has been used very successfully for self-instruction. Bung (1967-68) has written extensively on this subject. What is meant here is that the LL cannot in any real sense be a substitute for a teacher or be its equivalent. Howatt also writes extensively (1969 : 181-191) on the benefits that may be derived for the learner from self-instructional programmed materials particularly in pronunciation.

that the LL is essentially a tool for practice rather than presentation or exploitation, and that LL work should be carefully planned and integrated especially with regard to deciding what can best be practised in isolation and what really needs face-to-face contact. Dakin (op.cit., Ch.2), however, reminds us at length that what you do with your integrated LL and how consistent you are in your approach to LL use rather depends on what your teaching and learning principles are. The behaviourist is likely to favour the closely controlled and tightly sequenced integration, while the teacher influenced by cognitive principles may prefer a looser and more individualised library form of integration. On the other hand, integration can be so inadequately considered as to pay no more than lip-service to the basic principles of use, as Hilton (1964) illustrates when comparing good and bad LL sessions. Integration means more than simply working through the same books and tapes in the LL as in the classroom, it also means moving in and out of the LL learning mode with as little disruption and as flexibly as possible.

Integration as described in the literature can be divided into two main types, the one allowing for a pragmatic view of the LL as an aid to oral-aural practice and the other arguing that the LL must be a fully integrated feature of the method and materials used. H.V. George (1970) and Botsman (1971) argue in favour of the fully integrated LL not only in the material and method sense, but also in the physical sense of having the LL around the walls of the classroom so that students can have short sessions of 5-10 minutes practice just as they would with written exercises before follow-up or correction by the teacher. Chatagnier (1970) indicates that the very need for this form of systematic integration rules out the use of the LL in secondary schools. His analysis is not simply based on the findings of the effectiveness studies such as those in New York (Keating,

1963) and Pennsylvania (Smith, 1970), it is also based on a close examination of the workings of the studies and concludes:

> ".. they used their dubious scientific findings to profer value judgements on non-defined methods of instruction".
> (Chatagnier, 1970 : 34)

and that the environment and physical barrier of the isolation of the instruction from the students makes the LL a non-starter: the electronic classroom is needed.

With regard to methods, Brian Harrison (1973) highlights one of the main problems of integration for many teachers: that stimulus-response practice and predictable verbal behaviour are both at the heart of LL use and neither can be equated with language use. How then are teachers to exploit the language of the LL in making the language that the students learn in the LL "their own" (1973 : 94) ? Cannot teachers simply by-pass the artificial, pattern practice stage ? The problem of transferring LL practice to real life is discussed by Keuleer and De Blesser (1976) in terms of the difference between 'trace system' memory stores in learning and non-learning situations. Real life situations have control through context of the grammatical forms of normal speech. The drill situation, however, cannot do this, it can only construct associations between language structures and artificially standardised speech situations. It follows, then, according to Keuleer and De Blesser that any practice must be followed by 'rule-centred' conversation topics directly after the LL session. These views also find echoes in the criticisms of meaningless drills for their failure to practise structures effectively in some cases and their tendency to over-generalise structural rules in others made by Dakin (1973 : 59). Integration in this sense becomes a matter of balancing the necessary acquisition practice of the LL with the application practice

of the classroom. Many writers on LL methods take the view that you must suit your methods and materials to the LL rather than relying on the pragmatic approach that one should adapt the use of the LL to the methods and materials best suited to the needs of the students. Scherer's view (1965), for example, is that the LL should take the place of homework and should only be used as an integral part of an audio-lingual teaching programme. Hayes (op.cit.) and Hocking (op.cit.) have already been quoted (see 2.2.2) in this respect and their attitudes imply strongly that the LL has certain design features that make its use with one teaching method more appropriate than with another. Applying this view to other approaches, such as that put forward by Dakin (op.cit.) with a cognitive bias, it could be said that the LL no longer has a viable role as a class teaching aid, and that a mixing of approaches is likely to lead to inconsistency. However, this is possibly to overstress the position of particular approaches and learning theories in language teaching. It could also be argued that for many teachers, the problem does not lie in rejection of the practice associated with the use of the LL, or in mixed approaches, since what may appear to be contradictions for the theorist may be a multi-faceted approach to a highly complex learning process for the teacher. The real problem may be found in the need to fulfil strict conditions in order to exploit the LL. Stack (1966), for example, lists the conditions as being: 'effective' pattern practice drills; thirty minutes every day; careful staff and student orientation; systematic intensive practice following structural and phonetic principles of work previously presented in the classroom. Other writers give similar lists and conditions, and thus, while some (for example those of the cognitive-code-learning approach) would reject the pattern practice and structural work and might substitute more 'meaningful' exercises, all are left with

problems not only on the methodological and material level, but also with problems of timetabling, administration and maintenance.

Much of the integration issue turns on establishing the status of the LL relative to the whole teaching programme. In research, effectiveness studies (e.g. Keating, 1963; Lorge, 1964; Smith, 1970) can be seen as attempts to discover whether the status accorded to the LL largely on faith and trust was justified in secondary school teaching programmes in terms of the results produced with or without the LL. Other areas of integration described in the literature, without empirical evidence to support their claims, tend to be in specialist courses at University or tertiary level, for example, in phonetics and phonology (Stankova, 1970; Roemmele, 1966; Evans, 1970), in note-taking (Quinn, 1975) and in interpreting (Henderson, 1976). Case studies have also been reported in special subject fields. Whitaker (1976) describes the role of the LL in a university classics course:

> "At the time of writing, I am composing an 'integrated' programme ..... on elementary reading of Hittite cuneiform ..... the purpose is simply to make clear what ambiguities caused by this syllabic script need to be allowed for when quoting Hittite forms for comparison, but of course, we are all glad of a reason to have a go at cuneiform ..... Obviously one would not begin with anything recorded because it is the loss of the whole dimensions of the live exposition which makes the subject matter dull and unintelligible again."
>
> (1976 : 27, author's underlining)

Integration is thus seen as a problem of identifying an essential and efficient role for the LL, while at the same time recognising and minimising its limitations as a one-dimensional tool, and so not allowing its practice function to take over from the 'whole dimensions of the live

exposition' mentioned above. Another case study, by Campbell (1968), describes a fully integrated programme for teaching Thai pronunciation. In this course the LL is not used until pronunciation and intonation problems have been dealt with explicitly, then discrimination and recognition have been developed under the teacher's close control. Only when the students can articulate sounds consciously through explicit instruction can they pass to LL practice.

2.4.2 The non-integrative use of the LL and research into the effectiveness of LL use

Integration has frequently been defined over the past twenty-five years and most teachers would be able to give an adequate description of what their own form of LL integration was. We now intend to consider what the non-integration of the LL means. There are two forms of non-integration, the conscious, planned and intentional, and the unconscious, unplanned and unintentional. The first is often linked with programmed learning and self-instruction (for example Bung, 1967-68; Rand Morton, 1961) where the LL is seen as a teaching machine in its own right. However, many users fall into the second category, not only because they have failed to minimise the limitations of the LL, but also because of the difficulty in devising materials capable of exploiting the design features and facilities of the LL fully. Many teachers using the LL as a class aid will state that their LL sessions are integrated (adding that much of the work is supplementary to the classwork). Integration as far as many courses are concerned (for example Broughton, 1968; Alexander, 1967; Alexander, 1978; O'Neill, 1971) means that LL exercises are taken from the same book as the classroom work and then integration is achieved by requiring the students to perform certain tasks in the LL - pronunciation, repetition drills or tests. Hocking (op. cit.) rightly points out that many LL sessions involve mere extensions of the classwork or outright supplements or 'enrichment' activities (p.32) and

to such uses he applies the term 'disintegrated LL' (p.32). One thinks again of the disastrous LL session described by Hilton (section 2.3.1). An example of poor integration taking place in research on the use of the LL is to be found in Savignon (1972) in her experiment on teaching communicative competence. Her criticism of audio-lingual methods is that there is no real communication in such methods, her approach is to have two experimental groups and one control group - the control group using the LL - to show the relative merits of methods designed to improve communicative competence, and the ineffectiveness of the LL in developing linguistic or communicative skills. Ms Savignon falls into the trap described above by Hocking and earlier by Chatagnier (section 2.3.1 p.15) when she states:

> " ... the tapes used with the textbook and the laboratory manual contain exercises in listening and repeating, question and answer drills, various types of substitution and transformation exercises and dictees " (1972 : 21).

It seems that in this case, and indeed as the author admits, it is regarded as equivalent to and comparable with carefully planned and designed courses in French life and culture for one group and communicative skills for the other.

It is probably an unfortunate but inevitable feature of the above study and the larger, explicit tests of LL effectiveness that LL integration is marginal and takes little account of the principles of LL use. Thus even in the large-scale Pennsylvania Project (Smith, 1970), the question of integration was largely decided by the choice of textbooks used and by the extent to which the exercises in the manual stimulated the students in the LL. The LL was not from the outset an integral and integrated part of the teaching/learning strategies (p.22). It was consistently regarded as a system not implicit in the approach, but complementary to it. Green (1975)

indicates that such effectiveness studies are not concerned with analysis but with results:

> "It was not the aim of the York Study to discover the optimum pattern of usage of the LL, but to find out whether the LL as it is commonly used in schools is effective." (1975 : 195)

The Pennsylvania Project (Smith, 1970) started with a similar key hypothesis:

> "There exists some combination of instructional strategy and audio-system in which students achieve significantly higher on criterion measures of listening and speaking." (1970 : 67)

This hypothesis was tested using existing courses, methods and strategies as used in Pennsylvania. Naturally there would not only have been difficulties of comparison if the Project had produced its own materials, but also questions of validity and of the independent variables in the experimental method. As it was, the results could only confirm the fears: poorly conceived and poorly planned integration and utilization leads to the predictable recommendation that the LL should no longer be used as a class activity, but that it should be used for individual practice in addition to regular classroom instruction.

Fortunately, this negative and pessimistic view of the LL as a class aid is balanced by the findings of Lorge's (1964) study of LL use and effectiveness in New York City High Schools. It was found that the greater the role of LL classes in the timetable through constant, regular use, the greater the gain in performance over non-LL or non-regular LL classes. Her conclusions support not only the regular use and full integration of the LL, but also stress the importance of materials and methods which make full use of the potential while minimising the limitations of the LL[12].

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12. For example, it was found that 'conversation' materials were least effective, while pronunciation exercises for discrimination practice worked well.

Perhaps the most disappointing aspect of the York Study (Green, 1975), which examined the results of using a LL in a British secondary school over three years for teaching German, is its failure to analyse the role of the LL in the syllabus, and why and how the LL was suitable (or with hindsight perhaps unsuitable) for the courses and materials used, apart from the fact that the publishers stated that the taped material could be used with or without a LL. We are given no evaluation of the suitability of the materials for LL use, or any indication of the differences between using the materials in the classroom and in the LL. Furthermore, using the same material in the LL as used in the classroom is hardly a conscious, planned integration of the LL in the learning programme. It is interesting to note (ibid. : 54-65) that while a description is given of the techniques used for demonstrating and practising the materials with the non-LL groups, none is given for the LL group. As in other studies, the LL is taken more or less for granted as a tool, without discussion as to its suitability. In this particular study, only frequency of monitoring appears to be of serious concern to the teacher during the LL session (ibid.: 200), and it is probably not surprising that the LL was judged to be an expensive failure as a class aid.

The value of such general and largely self-fulfilling studies is somewhat questionable especially in the light of the follow-up to the Pennsylvania Project (Smith, 1970) some eighteen months later, when it was found that, although the original report had recommended new approaches to the use of the hardware and had shown that the use of the LL was, in some cases, of negative value, 88% of those using the LL had not changed their approach in any way. It appears from the results of these studies that the LL can be used for administrative purposes rather than for more rapid or efficient language learning, and these 'administrative' advantages for the teacher may at times undermine or nullify advantages in LL use for the learner.

2.4.3. Research into the utilization and development of LL facilities and the problems associated with self-evaluation and self-responsibility by learners

While large-scale studies such as those described have provided few practical recommendations for class LL use, there is a body of research and literature on particular aspects of LL use and on the utilization of equipment and materials. Much of this research has been carried out on comparison of the delayed and instant feedback systems of AAC LL's. The philosophy underlying this work shows a concern with the limitations of the hardware as discussed in section 2.3 p.15. The LL is a relatively primitive tool, and we should not hesitate from trying to seek solutions to the problems caused by the need for simple, flexible equipment for speaking and listening practice.

In 1968, Mueller (1968) was writing in the Modern Language Journal that the comparison cycle of the normal AAC system was having a deleterious effect - comparing it to a blindfolded person learning to use a tool with the results only at the end. The criticism is unsupported by empirical evidence, but these doubts about the value of the record-playback system are echoes of Marty (1960) who expressed the view that self-evaluation is not made easier by listening to recordings of one's own voice and could easily lead to boredom and to the reinforcement of errors. This point is also made by Rivers (1964), who bases her claim on the experience that it is difficult to diagnose one's own mistakes and that it can be both wasteful and time-consuming to use record-playback facilities, and by Hocking (op.cit.) who argues that an immediate playback system heightens attention. Lorge's study (op.cit.) described above, however, suggests that in practice students do benefit from regular use of a system with record-playback facilities and that such regular use produces better results than a simple tape-recorder or audio-active system with no student-record facility. Another less telling argument for the record-playback system

offered by the AAC LL (Locke, 1960) is that students cannot perform the multiplicity of activities necessary when performing drills and that such a system allows for recapitulation and self-paced development. Qualified support for a well-monitored AAC system is in fact widespread (Flaxman, 1961; Hilton, op.cit.; Dakin, op.cit.) and indeed in this respect, Dakin agrees with the view of Hayes (section 2.2.2, p.12) that practice is central and that given certain conditions, the LL can provide excellent, massive, self-critical practice. Perhaps all writers on the subject are in fact in agreement. Most writers express the view that LL exercises should be short and that there should be a variety of exercises and activities if possible. Most would also support Hilton (op.cit.) in saying that the LL session should ideally be broken up into practice sub-sessions, just as George (op.cit.) argues in his article much later when advocating the LL around the walls of the classroom. Most, if not all, are then in favour of very short delayed playback, that is, at the end of a particular exercise or short set of exercises.

A limited amount of empirical research has been carried out on the problems of the self-critical facility of the AAC LL and on overcoming the design limitations in the hardware which create some of these problems. In a comparative study of audio-active (AA) and AAC LL's, Perelle (1975) found evidence to support earlier untested views that students had difficulty both diagnosing and correcting mistakes, while Sisson (1970) in a small scale study demonstrated that for pronunciation exercises the AAC system with delayed playback produced no significant difference in performance over a group responding actively a second time. Both these studies are, however, only conducted at the sound discrimination level, and in the case of Perelle (op.cit.) set out to show that since a student does not have phoneme categories, there is no advantage in having a compare facility. Perelle's conclusion that the AAC LL is not effective in

increasing conversational ability in First Year students and may be a wasteful hindrance is an extremely broad claim for a very limited experiment, the conduct of which shows a complete disregard for the principles underlying teacher and student use of the LL. Rivers (1968) and others have frequently stated that careful orientation of students and full explanation of phonological problems are needed if the students are to benefit from LL use, and that teachers must be constantly in touch with their students' performance if the LL has a record facility. The dial-access LL used in Perelle's experiment appears to have given a responsibility to students that they were ill-equipped to handle and monitoring was carried out only perfunctorily by an attendant. A similar weakness in procedure also affects the 3½ year project with Swedish undergraduates reported by Jalling (1971). At the level of phoneme discrimination, it had already been noted by Marty (op.cit.) and by Campbell (op.cit.) that students need explicit description and explanation before attempting any form of self-evaluation.

Higgins (1975) performed two experiments on self-correction using four phase[13] drills. In the first experiment he found that many students simply did not carry out the fourth phase and in the second group there was frequent faulty correction, even introducing a new error. As he says:

> "... we can be satisfied that the student knew that his A phase answer was wrong, but could not perceive what way or ways it was wrong." (p. 153)

Higgins continues by stressing the importance of repeater loops and immediate playback but does not discuss the problem of what the student has been trained or actually asked to do in the LL. It may not be a simple question of perception as he claims; there could be production factors, a

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13. That is, stimulus-response-correct response-correction/reinforcement.

poor frequency response, inadequate preparation. Indeed to return to the phoneme level, paired uncontextualised discrimination tests are probably the most demanding tests for equipment, let alone the foreign student, as any telecommunications engineer knows well.

A key piece of research in this area is that by Chomei and Houlihan (1970 on three systems, two repeater loop systems and a normal AAC system. Their experiment has been criticised by Bennett (1975) for being too divorced from real teaching/learning and being dominated by constraints on individual learning opportunities but we have already seen that there is a body of support for the greater interactive capability offered by short delay or instant playback. Both the method of total LL teaching and the materials have questionable validity in terms of principles of LL use, yet the conclusions that instant playback of stimulus plus student response produces best results for pronunciation, structure and listening comprehension are in accordance with the general view that long delayed playback is to be avoided. It is a weakness in the design of this experiment, in our view, that the delay in the AAC system was so long, 20 - 25 minutes from initial broadcast to playback.

An issue central to much of this argument is concerned with practice and self-correction. The LL can provide the practice, but the student is left for most of the time to monitor and evaluate his own performance. The research described above shows the attempts made to maximise the practice aspect, while minimising the limitations of a non-critical response from the LL, and also increasing the student's perceptual awareness of his own errors. A trend of developments in hardware also shows concern for this problem. This trend is currently towards computer assisted language instruction (CALI), library systems with self-correction techniques, loop-repeaters, student-centred and individualised programmes, and more sophisticated educational tape-recorders. Roeming (1971), Esterallas (1971) and Fujimura

(1971) all discuss developments in hardware to overcome the technological limitations of current equipment. Roeming sees student-centred learning in terms of an instant-repeater system with three modes of learning (skill acquisition, adaptive and creative modes), a cartridge-loaded four-track tape recorder, a monitoring listen-record tape recorder, an electronic scanner and magnetic computer tape output for the scanner. Such a 36 booth LL would cost, it seems, about £100,000 (in 1971). Fujimura takes a slightly less extravagant view of language learning technology and highlights a major limitation of LL technology: that if LL learning is to be truly individualised and made student-centred, there must be some form of random access to materials, a point which becomes all too apparent when one tries to deviate from the pre-set flow. A partial solution to this, he suggests, would be a two-dimensional tape where it would be possible to store the text of the lesson on one track with manual selection of several lessons, and at the same time have two recording tracks. In the experiment described, however, Fujimura (op.cit.) used a more complicated tape-recorder with automatic forward/reserve skip and with one channel used for digital pulses as cues. Cost, as with Roeming (op.cit.) is a major inhibiting factor.

These trends have also led to the possibility of programming a critical response into the LL programme and thus overcoming the purely reactive nature of the LL/student relationship. CALI has thus far failed to achieve a great deal, though as Nelson et al. (1975) reports, work is being carried out at the Massachusetts Institute of Technology on German/English translation and German word order exercises which function in a similar way to drills. The lack of critical response in the use of the LL leads to another aspect of the problem of limited applicability, that is, is there a point of diminishing returns. Hedger (1969) asks this question in his review article on the

Keating (op.cit.) report. If there is, how soon is it reached ? Is the decline in effectiveness sharp or is it graded ? As the learning progresses, so the linear, sequenced, carefully programmed courses which the LL appears designed to implement with ease become more complex and demand greater interaction, and so greater innovation and originality is needed to exploit the facilities offered by the LL. Rivers (1968) puts this problem another way:

> "The uses to which the laboratory can be put at advanced level are limited only by the imagination, resourcefulness and enthusiasm of the teacher." (1968 : 351)

And, she might have added, by the technical limitations of the LL.

The interest in loop-repeaters, digital location tracks and library systems indicates the desire for a LL system which will respond to a flexible, individualised yet at the same time integrated approach at all levels consonant with current teaching principles and which will not produce diminishing returns as the learning becomes more complex and the student is required to take the initiative more often. To return to the earlier point of practice versus correctness, the experiments on students' ability to evaluate their own performance or benefit from audio-active, AAC or loop-repeater systems may not really be concerned with whether one system is 'better' than another[14], but rather with an overall view of teacher and student in the teaching/learning process and when and how the teacher should give responsibility to the student for his or her own performance.

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14. Since 'better' is notoriously difficult to define, unless one takes such limited and narrow criteria as to make the validity and general reliability of the results questionable.

2.4.4 Problems associated with self-pacing in the literature

The issue of student control and responsibility overlaps with another problem area in which much advice has been given and a limited amount of research has been carried out, namely pacing. One can define two main forms of pacing, which we shall refer to as internal and external pacing.

External pace is that which is imposed on the materials by the material writer or tape producer - this could mean 2, 3 or 4 phase drills and pauses of native speaker length or longer, or even pauseless tapes. It could also be used to refer to the pace of the exercise or exercises as a whole, that is, the amount of practice in a sequential, cumulative development of language skills. Internal pace is the control which the teacher or the student imposes on the pace of the material, that is, the manner in which the teacher or student adapts the external pace to his or her own requirements.

While general writers on the subject (e.g. Rivers, Stack, Dakin, Hayes, Hilton) emphasise the benefits of students working at their own pace, they also stress the fact that if the student is not carefully trained in self-pacing, little benefit will actually be derived. Clearly much of the problem of pacing lies with the external pace, given time factors, administration and the reluctance of many teachers to interfere with published materials in terms of the length of segments, the variation in structural content, and the pauses and speed of delivery. Rivers (1968 : 339) takes the view that the teacher must observe the reaction time of his/her students in response to pattern drills very carefully and may well have to adjust the length of the pause as the students become familiar with responding. It may even be that two programmes will become necessary as discrepancies become wider. This advice can really only apply to those

users who have pre-recording and an alternative to lock-step introduction of the practice material before students can work at their own pace. The important point, as with self-evaluation, is that when properly trained, by controlling the pace, the student can bring a contribution to what might otherwise be a 'brain-washing' process. In audio-lingual terms, individual differences between students are accommodated by each student proceeding at his own pace on his own machine. Of course, while this means flexibility and individualisation of a sort, it is not the functional or semantic flexibility sought by a communicative approach to teaching, but remains firmly on the drill/pattern practice level[15].

Marty (1960) saw one of the drawbacks of the LL in its inflexibility of pace during class use. His suggestion was that drills should be prepared without pauses and with no student recording - rather, there should be a backspacer for immediate correction (c.f. Chomei & Houlihan op.cit.)[16]. The argument for tapes without pauses is given support by Mathieu (1965) who puts forward the notion that the student have a tape-recorder which allows him to lengthen pauses by means of a pause lever operated by hand or foot. As he rightly points out, the speed with which learners of a foreign language, indeed even learners of a native language, are able to react verbally to spoken stimuli varies considerably and changes in the process of learning.

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15. At advanced levels, the self-pacing argument is even stronger, yet as Rivers (1968 : 350) and Dakin (1973 : 170) point out, it may be necessary to have a library system in order to exploit the advantage of self-pacing.

16. Marty, however, is also against booths and the accepted concept of the LL.

Factors of ability, motivation and fatigue or concentration may all have an effect. According to Mathieu, the optimum performance is only to be obtained if the necessary time is provided to perform in the learning phase (ibid. p. 40). Thus, with a foot-operated lever, a two-cycle exercise can be transformed into a four phase drill. Most writers are, once again, in agreement on how to make LL work genuinely self-pacing, and on letting the student respond/answer in his or her own appropriate pause. However, it is felt from the author's experience and from the experience of others by personal communication, that many students welcome native speaker pace or something approaching it as a reasonable challenge and as an attainment criterion. An example of this in practice is the structurally based course 'English Fast' (Wakeman, 1970), which has native speaker pauses and three phase drills and which states explicitly that it is considered an important methodological aspect of the course that the students should be working towards the normal stress, rhythm and pace of English. Little applied research has been carried out on the importance of stress and rhythm acting on and with structure and lexis in the development of listening and speaking ability in adult foreign learners of English[17], although there is a body of research in experimental phonetics and in phonology of relevance, which will be reviewed in Chapter Four. Given the combination of external pacing which provides a constant and programmable rhythm, and the internal control of the student's own pacing, the LL would seem to offer excellent facilities for training students in the control, manipulation and perception of stress and rhythm in connected speech, not only as markers of information and emphatic or contrastive implication, but also as the device by which speakers are able to convey and in turn perceive maximum information in minimum time. We shall return to this point and develop it in greater depth in Chapters Four and Five.

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17. Corrine Adams (Adams, 1979) has carried out research on the perception and production of stress by foreign learners of English, but not involving the LL. This research will be of relevance to later topics and will be discussed fully in Chapter Four.

The question of whether to use three or four phase drills has been discussed by several writers. Rivers feels that the fourth phase is wasteful and time consuming (1968 : 348-349), while Bonar expresses the view:

> ".... and if the learner has not given the correct answer the first time and corrects himself at the second chance, how is the tutor to know, at the time, whether the student has really grasped the point or not?" (1967 : 167)
>
> (c.f. Higgins, 1975, quoted in section 2.4.3, p.29).

The theory is, of course, that the fourth phase gives the student a chance to compare and correct himself, but as we have already noted, the ability of the student to correct himself appears to be limited and to be subject to fairly rigorous conditions. Three or four phase drills will also affect the pace of the lessons; a four-phase drill on first run-through may well be too slow for some, as Rivers suggests (1968 : 325), and a second run through, even under student control, may be a recipe for boredom, gaining no advantages in natural stress, pace and rhythm but being no more than mechanical parrotting and consequent underlearning. An example of this in published material is certainly 'Success with English' (Broughton, 1968), where all drills are four phase and excruciatingly slow, and, furthermore these LL drills are certainly what Dakin had in mind when he describes the paradox of meaningless LL drills as follows:

> "I have offered two contradictory answers to the question of whether drills do or do not practise structures. On the one hand, I have argued that they may fail to do so, at least in the case of substitution drills ..... On the other hand, I have argued that they teach structures all too successfully. By declining to give negative examples, they encourage the student to make mistakes of over-generalisation." (1973 : 59-60)

As Beile and Beile (1971) stated in their assessment of specific LL drills, in drill practice the student always responds to the LL; he is never more active than that and never supplies the speech stimuli himself. That is, perhaps, one of the inevitable limitations of the LL and one which the teacher by careful integration and use of materials must seek to minimise, while exploiting other advantages.

To take this criticism a step further, many writers on the use of drills consider the so-called 'lock-step'[18] a poor approach to LL use as it prevents the student from exercising control over pace. Valdman (in Gravit & Valdman, 1963) even devotes a chapter to what he calls 'Breaking the Lock-Step'. Hilton, too, (op.cit.) takes a critical view of teachers who present lengthy drills in lock-step. In the York Study of LL effectiveness (Green, 1975), however, the taped materials contained a variety of paused and unpaused exercises and drills and,conforming to what was taken to be the usual practice throughout modern language teaching in Britain,this was presented in lock-step first; the students were then given at least as long a period of working at their own pace and under their own control to listen to and compare their recordings. The attitude taken by members of the York Study team was as follows:

> "The lock-step effect can, however, by forcing students to work against the machine make for speed and fluency, provided that the material is reasonably familiar and gaps on the tape have been carefully judged." (Green,1975 : 59)

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18. Lock-step is used to mean the presentation and recording of drills and exercises to students in the LL while under central console control. That is, the students cannot stop or rewind their own machines if they cannot follow at any particular point.

The rationale of speed and fluency would be valid without the lock-step presentation, as it is for the 'English Fast' course (Wakeman op.cit.), and is precisely a matter of good preparation before the LL session, and well-judged gaps. The York team are clearly making a virtue of a necessity caused by timetabling restrictions or inability to pre-programme. As many writers have argued, lock-step is needless regimentation if a class has been well-trained in self-evaluation and self-pacing, and the materials are well-paced, and can lead to frustration and mindless response or repetition by the student - Dakin's 'tum-te-tum effect' (1973 : 59).

Pacing is, then, an issue not only raised by the very nature of the LL and the principles underlying its use, but also by the spoken language itself as the basic material for use in the LL. As Marty (op.cit.) and Mathieu (op.cit.) have said, the optimum system of pauses may be one with no pauses at all, since pauses are only a necessary part of the practice if one has a tape recording actually running, and if one feels that stimulus-response-reinforcement is a good and useful method of inducing good language habits[19]. Self-pacing, in turn, raises problems of whether one should be working towards the pace of the normal spoken language, or whether one can abandon the target language pace, or the pace of the lesson, and simply work at one's own pace, concentrating on grammatical and lexical correctness, at the same time ignoring the real-time aspect of spoken language.

2.4.5 The frequency and length of LL sessions

Pace has, unfortunately, had very little research and discussion

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19. Compare, for example, the materials presented in Chapters Six and Seven of this work which can be described as 'pauseless'.

devoted to it compared with the issue of session length and frequency. General writers on LL use are clearly on difficult ground, much as lecturers know that it is difficult to keep an audience alert for over thirty minutes, yet continue for fifty minutes or more. Session length is recommended in the literature as anything from:

5-10 minutes, frequently and as required : Botsman (op.cit.), H.V. George (op.cit.)

to 20 minutes, daily : Rivers (1968), Dahms & Ciceran (1976)

to 30 minutes : Stack (1966, 1971)

or 20-30 minutes : Scherer (1965)

or even 45 minutes : Turner (op.cit.).

The advice given about optimum session length and frequency, and concentration time seems to have had little effect on LL administrators. As Roemmele (1966) and Rivers (1968 : 336-341) both point out, boredom and interest factors are critical especially when the formula for LL use is 1 hour x ½ LL x 5 days per week or less. All those giving advice are in agreement that the optimum session length per exercise is from 6-10 minutes and if administrative or timetabling factors mean that a class must have one fifty minute LL session, it should be broken up into shorter sessions or sub-sessions with variety of pace and activity. Hilton's description of good and bad LL sessions described above (see 2.3.1, p.16) presents an all too familiar picture of the overlong LL broadcast session, where students lose interest and cease to participate.

There has been little empirical research on session length and frequency of sessions beyond that included in the effectiveness studies already described above. One might think that the objective of determining the optimum combination of "strategy" and "system" in achieving the goals of the foreign language programme would make length and frequency of LL sessions

in the Pennsylvania Project (Smith op.cit.) of critical importance, yet, as in the York Study (Green op.cit.) little real importance was given to session length, frequency of sessions or internal session time allocation in the studies. Session length and frequency were both matters of time-tabling and administration, just as materials used were those readily available. This treatment of potentially important variables illustrates the point made in the opening section (2.1), namely, that administrative factors often obscure and even prejudice the potential benefits to be gained from LL use. Lorge's (Lorge op.cit.) study of LL use in a New York City High School indicates that session length and frequency can be significant variables in judging the effectiveness of LL use. As her study shows, daily use in 20 minute sessions showed significant advantage over less frequent but longer sessions in tests of spoken production and listening. This is in no way surprising, given the fact that the LL is a place for individualised and intensive, and therefore tiring, practice.

2.4.6 Teacher control vs. student responsibility - instructional and pedagogical intervention

We have said thus far that the LL is frequently out of the teacher's hands as far as integration, pace and length or frequency of session are concerned, that is, that the teacher is obliged (or at least acquiesces) to follow the administration, course planners or text-books writers. The issue of control and responsibility indicates that the LL is more than just one more aid among many in language teaching, and one area, at least, where the teacher can be said to be in control is in how he or she manipulates the controls, and what facilities are used or are given to the students to

use and exploit during any LL session. Again, unfortunately, there has been a great deal of advice but little empirical research in teacher use of the LL. All writers on LL use so far cited stress the need for careful orientation and preparation, indexing or pre-recording of material, then reduce the role of the teacher during the LL session to that or monitoring, in order to give help, advice and admonition as and when required. Rivers (1968 : 345) feels that occasional teacher intervention is important psychologically, so that the students will be aware of a critical and interested presence, and more important:

> "Students unmonitored in the LL may well be reinforcing their faults."

She also stresses the need for teachers to go from the individual to the general if several students are making the same errors:

> "... it is the teacher's job to listen to the mistakes, not the students."

thus emphasising the valuable role of the LL as a place of critical observation and diagnosis.

It is easy for the task of monitoring to become oversimplified and some writers on the subject are content to hand the job over to a LL assistant (e.g. Perelle , 1975 ; Esterallas , 1971). Hilton (op.cit.) takes the opposite view, seeing the importance of the teacher knowing his class and using his knowledge in knowing who to monitor. As Dahms and Ciceran (op. cit.) noted, many students only perform when monitored. Jalling's experience (1973b) in Sweden also supports the need for close supervision and monitoring in the use of dial access systems for undergraduates. There seems to be a

link between poor performance in self-criticism and the desire by the teacher for close supervision and constant teacher intervention, either of an instructional type (i.e. "rewind now!") or pedagogical type (i.e. "is 'mans' really the plural of 'man'?"). Both supervision and intervention are in turn linked to the degree of preparation (again instructional or pedagogical) and to the integration accorded to LL sessions. An article by Riley (1974) offers a partial explanation as to why monitoring is rather a 'grey' area, that is, one with assumed practices but also with indications that a real grasp of its problems and implications is frequently lacking:

> "As long as structural considerations dominated the choice and definition of teaching objectives, neither the adequacy nor the relevance of the LL was really questioned." (1974 : 57)

However, the role of the teacher has shifted with the current emphasis on interaction and meaningful communication between the teacher and students and between students themselves away from the structuralist who clearly saw the LL as a means of enabling the student to get through the essential spadework of drill and practice, and thus should be adequately prepared for this. The paradox of the cognitively[20] inclined teacher hindering the full exploitation of the self-evaluating facilities by over-monitoring is illustrated by Green and his colleagues in the York Study (Green, op.cit.):

> "..... by using the university LL we enjoyed more favourable conditions than many schools: .... the LL had a split monitoring facility, and by using the German assistant we were able to double the monitoring." (1975 : 200)

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20. Green's description of the course and methods used indicate a mixed, pragmatic approach, rather than a strictly cognitive approach, and in a basically structural course, emphasis is given to the situational and functional aspects of the structures. I think the paradox is valid, however, and shows how easily teachers can fail to appreciate one of the fundamental principles of LL use.

One view of this assumed bonus might be that the intervention and interference by the teacher or the language assistant were also doubled, and that the teacher never actually gave up full responsibility to the students for their own performance, and so it was hardly surprising that the students were unable to derive full benefit from the self-critical facilities of the LL. The inability of many teachers to keep monitoring intervention to a minimum and thus allow students the chance of exploiting the facilities of the LL for self-pacing and self-criticism adequately was stressed by Hocking (op.cit.):

> "..... consigned to the supervision of LL sessions, he (the teacher) is bored or intimidated and somewhat resentful of being made ..... a technician." (1964 : 36), who then continues:
>
> "Someone has aptly stated that any teacher who is afraid of being replaced by a machine ought to be. This is only another way of stating that a valid part of language teaching is indeed the conducting of oral drills and that these should be carefully planned, recorded, and entrusted to the tireless and consistent voice of the machine. On the other hand, true teaching as contrasted with drilling is a person-to-person affair." (1964 : 36)

Do teachers still accept that oral drills are a valid part of language teaching ? Perhaps doubling the intensity of the monitoring by Green and his colleagues (Green op.cit.) in York, and close supervision in Swedish universities (Jalling, 1973b) suggests that it is not - or, that if it is, it is part of 'true teaching' and should be kept firmly in the hands of the teacher, even via the intercom. system.

2.4.7 Materials and associated activities used in the LL

Another key aspect of LL use is how much material and how many activities should be used in any LL session, of what sort and in what order. Again, most writers on LL use give specific criteria for choosing and

evaluating taped materials for use in the LL. The criteria are technical (e.g. noise, speed), phonological (accent, stress, naturalness), structural (length of segments, pattern changes etc.), pedagogical (number of examples, variety etc.). During the period up to the late sixties and early seventies, the criteria were predominantly based on a structural approach of careful grading and sequencing, systematic presentation of structures according to current notions of difficulty, usefulness and frequency, and avoidance of student errors. Since then, however, general works and articles have taken a broader approach to materials as the titles of some articles indicate:

"The Language Laboratory : Implications of the Functional Approach" (Riley, 1974); "The Lab. Sheet : Making the Lab. Teach" (Quinn, 1975) and earlier "A new concept of the language laboratory and its applications to research and the developing of proficiency in language learning" (Roeming, 1971).

Dakin, like Hocking and Hayes ten years earlier, states that the value of the LL lies primarily in providing concentrated, individual practice. As we have already stated above (section 2.2, p.12), the type of practice is dependent on what we want to practise, why we want to practise it in a particular way, and which principles, the behaviourist or the cognitive, underlie our approach to language teaching and learning. Dakin's six forms of practice[21], for example, are not necessarily intended for the class LL, indeed, as he himself states:

> "A teacher who has a laboratory and time to devote to it is rather like a teacher who has a good library." (1973 : 170)

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21. These are given as: listening, meaningless drills, meaningful drills, comprehension exercises, production exercises, problems.

Dakin is concerned primarily with describing library mode LL use within a semantically orientated language learning course rather than discussing LL specific language learning. That the LL is now so accepted that it can be discussed simply in the context of language learning is perhaps to underestimate the importance of the LL as a class aid to a specific approach and method, and the danger of its marginal and often questionable use as a class aid for other approaches. Attitude to learners' mistakes is a case in point. The LL cannot respond to, nor analyse, nor diagnose mistakes, it can only give a correct, programmed response. Should then materials be designed so as to minimise the chance of the learner making an error, or should they be designed so as to invite the learner to make the minimum number of errors consonant with and conducive to learning new rules ? Whichever approach is chosen, or how the two are mixed, will obviously influence the design and consistency of the whole teaching syllabus and materials.

Dakin's description of meaningless and meaningful drills (1973 : Chapters 4 and 5) illustrates how varied the discussion on the LL has become since the early sixties, as Stack can write of 'meaningless drills' only a little earlier as "the necessary spadework of language learning". (1971 : 119) but, it must be said, without excluding more meaningful practice from the LL. Since it was felt that drills were central to practice in the audio-lingual school and that structures and structural 'meaning' were also central, drills were largely a matter of predictable, structural manipulation. As we have noted in Hocking (op.cit.) the goal of the LL is to increase grammatical correctness and fluency and meaningful transfer is the job of the teacher. Dakin's proposal for meaningful drills raises a question: do teachers really want the machine to give meaningful practice, when this is the preserve of the teacher ? It would seem then quite natural for the teacher to interfere and intervene in any class LL session where meaningful practice is taking place.

Writers such as Racle (1976), Riley (1974), Quinn (1975) complain that structural and phonetic/phonological materials still dominate the market, and call for active, creative materials with free expression rather than stimulus-response-reinforcement as the standard pattern of exercises. Yet, given the design of present technology, such adaptation appears difficult. As Alexander states in the Introduction to "Fluency in English : Tapescript" (Alexander, 1970, p.vi.):

> "... in a 'real life context', a question .... could be answered in a variety of ways: .... and possible answers are infinite and to this extent open-ended. In the LL, however, we are restricted to a particular pattern, ... taking .. cue from the words .... which have been planted to produce this particular answer ..... Controlled, predictable responses are not compatible with what actually happens in real life. This is a limitation of the language laboratory which we must learn to accept and exploit .... Even within this limitation it is possible to create some situations that are 'more natural' than others."

As Alexander indicates, a central issue is whether one should try to identify those areas of language training and practice which are best suited to the facilities offered by the LL, or whether one should regard the LL as incompatible with certain approaches as a class aid, and therefore exploit it as best one can as a supplementary aid.

We do not propose to analyse materials devised for use in the LL or with the tape-recorder in any detail. It is interesting to note that most coursebooks devote little space to describing how the materials should be exploited in the LL either. As said earlier, the LL is now taken for granted as one more aid. Broughton et al in "Success with English : Coursebook 1. : Teachers' Handbook" (Broughton et al, 1968) gives sixteen lines to an explanation of how to use the taped materials with the tape-recorder, but only one line to LL use (p. xii, Introduction). V.J. Cook in "Active Intonation" (Cook, 1968) simply says:

> "In the laboratory period that follows the students should work individually. The teacher monitors, corrects where necessary, and answers appeals for help. All the students should be able to cover the material twice; the better ones three times." (1968 : xii)

The recommended method is that the first time the student should record his answers, the second he should listen and compare his recording with that of the tape, and the third, if he has time, he should record a correct version.

In the fairly recent "Mainline Beginners" course (Alexander, 1978), there is only one two-line reference to the LL in the teachers book:

> "Tapes are a desirable but not indispensable component of many courses. They can be used: 1. In the Language Laboratory (assuming one is available) after an exercise has been dealt with in the classroom." (1978 : 46)

This is an explicitly functional/notional course with considerable emphasis on improvisation and role-playing as learning techniques.

In "Strategies" (Abbs et al, 1975) reference to LL use make it clear that it is to be considered the equivalent of paired practice (p.vii) for role playing dialogues and oral exercises. Just how far the emphasis has shifted can be judged by the view taken in Alexander's audio-visual beginners' course, "First Things First", (Alexander, 1967):

> "At the same time, static patterns should be practised by means of drills, which make use of the language laboratory techniques. In each of these drills, the teacher seeks to elicit a particular kind of response. He provides the student with a stimulus to elicit a new pattern in a series of oral drills until the student is able to respond accurately and automatically. .... Where explanation is necessary, it can be done by relating a new pattern to one that has already been learnt ... by being made to see a meaningful relationship between the two." (1967 : xiv)

Not only is the LL not taken for granted in this description, but Alexander is prepared to say that there are LL techniques which exploit the advantages of a constant, unchanging model to produce accuracy and automaticity, and that there is a sense in which even pattern practice drills can be said to be meaningful.

Given the complacent attitudes to LL use in recent published materials and the frequent lack of detailed description of LL material and the concepts underlying its use and design, it is perhaps not surprising that those who organised effectiveness studies did not feel the need for full and lengthy discussions on the materials used. In both the Pennsylvania Project (Smith op.cit.), and the York Study (Green op.cit.), material used in the LL was that which was published and available[22] (highlighting the comment made by Strevens (1977 : 161-162) that only a fraction of our needs are to be found in publishers lists) and which seemed to fit the general criteria. In the York Study, the comment of the author is:

> "These were virtually the only courses available at the time for eleven year old beginners." (Green,1975 : 54)

Furthermore, there is also no attempt to test which types of practice, within those materials, worked best <u>in the LL</u>. On the other hand, the New York Study (Lorge, op.cit.) did produce some limited results on this aspect, namely that the least effective were 'conversation' materials in the LL, suggesting that LL materials need very careful structuring and goals which can be handled by the equipment.

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22. It was stated earlier (section 2.3.2, p.16) that is was not reasonable to expect these studies to have prepared their own materials, and indeed, this point also illustrates how they were essentially <u>administrative</u> studies of LL use, that is, they were studies of the LL as actually used in secondary schools.

2.4.8 Materials and activities for use in the LL at an advanced level

To what extent can the LL be said to be best suited to work at an elementary level in phonology and syntax ? We have already mentioned the notion of diminishing returns (see section 2.4.3 p.31) and this view is consistent with the importance of 'meaningless' drills and pattern practice in the structural approach, and the need for massive 'spadework' in the mastery of sounds and forms. However, there is also a body of literature on advanced and specialised uses of the LL, for example:

"A New LL program for Advanced Students" (So Wu Yi, 1974); "The LL and Advanced Teaching" (Leslie Dickinson, 1970); "The Place of the LL in a University French Department" (Brian Farringdon, 1969).

These and others set out to overcome the built-in limitations of the LL and the psychological resistance of students at an advanced level, and thus overcome the problem of 'diminishing returns'. This may, once again, be making a virtue of a necessity caused by staff shortages or by student shortcomings, but several writers have stressed the need for a separate approach to advanced classes and for innovation. Rivers for example, admits:

> ".. laboratory work at the advanced level must be designed to demand creative effort from the student and is most useful if students work with tapes on a library basis." (1968 : 350-351)

In the Introduction to "Fluency in English", at pre-Cambridge Proficiency Level (that is, advanced level), Alexander (Alexander, 1970) makes a clear distinction between elementary and advanced students in designing materials for the LL:

> "At the advanced level, we must assume that the mechanics of the language have, by now, been firmly established. The drills are therefore wholly concerned with usage. This makes it

> it possible to (as it were) humanise the drill material to a far greater extent than is practicable at the elementary levels."
>
> (1970 : v.)

This desire to 'humanise' has, as we have already seen in course descriptions, moved from advanced courses until we see currently courses at an elementary level concentrating on functionally based language use in continuous contexts (e.g. Mainline : Alexander, 1978). One explanation for the perfunctory way in which LL use with such courses is treated may well be that it is difficult to see how the class LL can be integrated fully into such an approach and given the linear, programmed and inflexible nature of the class LL. Abbs, Ayton & Freebairn (1975) simply make the LL the equivalent of paired practice at times, of role-playing at other times, and of the tape-recorder most of the time (c.f. the experiment conducted by Savignon discussed above in section 2.4.2, p.24).

2.5 Summary of Issues and Discussion

2.5.1 The main issue which we introduced in section 2.2 and then developed through a discussion of the literature and research, was whether the use of the class LL is tied to a particular theory of language learning and a specific approach to teaching. We have seen that if the LL is to be successfully exploited as a fully integrated class aid, its design features, limitations and principles of use - especially those concerned with student use - indicate that it may be best suited to the carefully sequenced and graded phonological practice, where development of correct perception and production of sounds and forms is the objective. We have also seen that in practice its successful exploitation depends largely on the expertise of the teacher in preparing the students to use facilities to maximum effect, and in selecting and grading appropriate materials and associated tasks and activities.

We have also seen that at more advanced levels of language ability, there is general agreement that the importance given to meaning and use in a wide variety of contexts indicates a need for the LL in its library form.

The complex interaction of the psycho-motor production and perception skills and the cognitive skills in the learning process is at the heart of many of the issues concerning LL use which have been discussed in this chapter. The need for systematic practice in sounds and forms to develop a degree of automaticity remains unchanged, but there is obvious dissatisfaction with drills and pattern practice as the means of achieving this. Perhaps the most insightful remark comes from Sarah Lorge in this respect:

> "Speaking a language is a muscular as well as an intellectual skill ..... coordination of the thought ..... and prompt physical expression of the thought are related but separate activities. The physical expression corresponds to a musician's ability to execute a selection on a musical instrument." (1964 : 416)

We shall argue in the following chapters that it is in training in the prompt physical expression and reception of connected speech in real-time that the facilities of the class LL are most fully exploited, and the demands placed upon it by the teacher and student, and by the LL upon the student, are met.

2.5.2 We have summarised the views of researchers, theorists, methodologists and material and text-book writers on the important issues in LL use, and have thereby tried to identify the potentially important variables in assessing LL use in any particular setting. Briefly, these were integration, self-criticism and self-evaluation, pacing and self-pacing, teacher and student responsibility, monitoring, session length and frequency, material selection and activities, and levels of language ability and LL use.

We have suggested that the LL has been designed to provide specific facilities with pedagogical applications in mind, and that successful exploitation of these facilities is dependent on an understanding of the above variables and the demands they make on both teacher and student, and on an understanding of the limitations of the LL.

We have also suggested that there is a need to identify those areas of language training and practice which are best suited to the facilities offered by the LL, rather than that the LL should be regarded as incompatible with certain approaches as a class aid, and therefore be reduced to playing a supplementary role.

In the following chapter we shall attempt to observe the variables affecting teacher and student use in actual LL sessions, in order to assess LL use by teachers and students, and to assess the extent to which successful LL exploitation can be said to be limited to specific approaches to language teaching and learning, and to a narrow range of materials and activities.

Chapter Three. Principles of language laboratory use and their applications II : a study of language laboratory use in four language schools

3.1 Introduction

3.1.1 This chapter is concerned with assessing whether the LL, as actually used by teachers and students, can be said to be fully exploited as a class aid in terms of its design features and facilities.

In Chapter Two, preceding, the argument was presented that few effectiveness studies have undertaken searching analyses of teacher and student use of the LL[1]. The conclusion of the York Study, for example, (Green, 1975) is simply that limited use of the LL:

> "appeared to be an ineffective, though common, exploitation of costly equipment." (Green 1975 : 203)

Holec (1971) indicated in his review of effectiveness studies how difficult it is to bridge the gap between the hypothesis that the LL would provide certain advantages over the tape-recorder or no mechanical aids and the measurable effectiveness. He also emphasises how important it is that the factors considered in Chapter Two, such as timing, frequency and materials, should be treated as carefully controlled variables in any study of LL effectiveness. While this seems reasonable, we have also seen (Chapter Two) that in at least one experiment (Chomei & Houlihan, 1970) limiting and controlling variables stictly may lead to questions of validity and applicability.

Green (op.cit.) claimed support for the validity of the pattern of LL use in the York Study from the responses to two questionnaires. Questions were asked about types of LL used elsewhere, technician availability, timing and frequency, level and reliability. However, no questions were asked about

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1. In fact, it was the view expressed in Chapter Two that most studies were largely administrative and only Lorge's study of LL use in a New York High School - a well-controlled experiment - (Lorge, 1964) offers useful insights into the problems of teacher and student use of the LL.

the way the LL was used by teachers and students in any particular session, or about approaches to teaching and to the use of the LL. We have already suggested (Chapter Two, section 2.1) that there may be a potential conflict, even contradiction, between the administrative advantages of using the LL, and any supposed pedagogical advantage in LL practice leading to better, faster or more enjoyable language learning. Anderson (1977), on the other hand, attempted in a series of questionnaires sent to Swedish schools to discover to what extent LL equipment was being used, and found that the main problems were maintenance, the training of teachers in LL use (my underlining), and the under-utilization of particular facilities such as 'Discussion'.

3.1.2 In order to carry out an analysis of LL use in practice, the view held in the present work is that both the above-mentioned techniques need to be used. Firstly, factors in LL use which make it fit to perform the task of providing practice in listening and speaking must be examined. This means, in practical terms, whether it has the facilities and functions necessary to bring about certain results, whether these facilities and functions, when present, are exploited, and to what extent. Secondly, questionnaires for teachers should contain questions not only about when and with whom they use the LL and its state of repair, but also questions which will indicate how their own approach takes account of the LL, how different facilities and functions are valued, their attitude to generally held views on the LL.

3.2 A model for the analysis of LL use by teachers and students

3.2.1 It was suggested in Chapter Two that the links between language teaching and learning and theories of language learning were often tenuous. In this chapter, we shall not attempt to apply a theory of language learning to the use of the LL, rather, we shall propose a possible model for analysing actual LL use. This model originates from the suggestion in Chapter Two

that the design features and limitations of the LL make some approaches to LL use more productive than others. At this point we shall introduce the concept of assumed advantage in LL use. This concept is based on the fact that such an expensive tool as the LL would not be in widespread use if it was not felt that the facilities offered could produce some advantage for the learner over other aids or no aids (unless serious staff shortages make the LL an administrative necessity). These assumed advantages are linked to underlying principles and conditions of use. For example, the assumed advantage in a student being able to listen critically to his own voice and evaluate his performance comes from the belief that students can be trained to evaluate themselves and can hear their own mistakes, given certain presentation criteria, and in turn, from the principle that self-criticism is a positive factor in language learning since it leads to increased accuracy and a more learner-centred approach.

For this assumed advantage to be obtained, not only must the LL have a record/playback facility, but the student must be able to manipulate controls and drills or exercises with ease, independent of the teacher, and have both time and the ability to evaluate their own performance and correct errors. Moreover, the students must be aware that the responsibility for the performance is theirs alone, and this latter point has, in turn, underlying conditions, such as the degree of preparedness or the clarity of the objectiveness of each session.

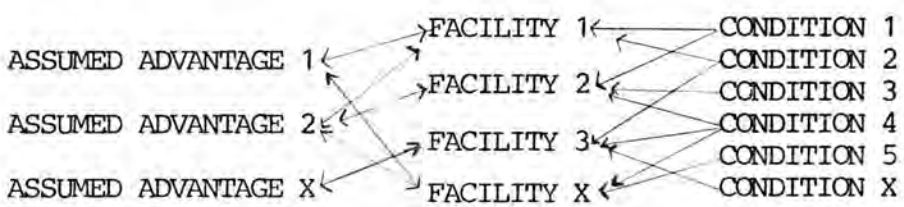
Thus, each assumed advantage can be said to be based on facilities (e.g. cue/rewind; monitor/intercom.) or functions (student can recap/correct; teacher can listen to student performance/correct student) built into the system, which can, in theory, bring about this advantage over the tape-recorder or no mechanical aids. This gives us the relationship of :

Figure 3.1

ASSUMED ADVANTAGE ⟷ USE OF FUNCTION/FACILITY

But it is not enough simply to tick off the functions and facilities used in any LL session in order to ascertain whether a claimed advantage is present. That each of these is exploited in any LL session is based on the presence of necessary conditions. As with any tool or piece of equipment, a thorough, quantitative analysis of the conditions underlying the use of functions and facilities is needed. The full relationship can then be described as follows:

Figure 3.2



3.2.2 We have still to define our term 'advantage' more precisely. Writers on LL use such as Dakin (op.cit.), Rivers (1968), Hayes (op.cit.), Stack (1966) list advantages up to thirteen in number. Those which all writers on the subject agree on are[2]:

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2. These seven are also supported by responses to questionnaires on LL advantages given to teachers taking part in the study by the author. These will be reported in Section 3.3.2, following.

1. Each student can answer all the questions and work all the time.
2. Each student is responsible for his performance.
3. Each student can listen critically to his own voice.
4. The student can work at his own pace.
5. The teacher can deal with each student's problems individually.
6. The LL can provide a variety of programmes and activities.
7. Students are not afraid to speak in the privacy of the LL.

However, we cannot state simply that the rationale of the LL is to provide practice and that the advantages are implicit in whatever practice is set for learners in the LL by the teacher. That is, the potential value of using the LL for both teacher and student is not automatically realised. By specifying the criteria for effective LL practice, we can link specific advantages with specific criteria. For this purpose, we can use the general criteria applied by work-study engineers in assessing the fitness of any tool for performing a particular task : whether it is faster, better, and provides more user satisfaction than any other means of performing the same task. It will be seen that each criterion can be linked to specific assumed advantages as follows:

Figure 3.3

Work-study criteria	Assumed advantages
1. Quickness in performing tasks : (cutting time/increasing practice time per student)	own pace; answer all questions
2. Accuracy in performing tasks : (cutting waste/improving class performance)	listen critically; teacher can help individually
3. 'Job Satisfaction[3]' : (using the intelligence of the user as a contributing factor to the two above criteria/ increasing interest and motivation)	responsibility[4]; privacy; variety

3.2.3 The underlying conditions of use which were felt to be of importance to the successful exploitation of the LL were taken from the findings of research and case studies on class LL use as described in Chapter Two, and from generally approved procedures and principles found in the literature consulted and also described in Chapter Two. These can be roughly divided into Pedagogical and Technical conditions:

Pedagogical conditions of LL use: LL work should be coordinated; LL work should be purpose-designed; teacher should be trained in use and exploitation of LL; teacher should feel at ease in the LL; teacher should be able to move class quickly in and out of LL learning mode with minimum disruption; objectives of any LL session should be explicit; students must be trained in use of LL controls; students must be familiar with procedure for drills and exercises before beginning LL session; students must be trained to avoid over- and under-learning or to rely on teacher intervention; students must be capable of working at the pace of the materials; students must be trained in record/playback techniques and in self-correction; LL session frequency and length should be carefully planned; depending on length of session, variety of materials and pace should be considered; material used must be adequate and appropriate for the task; amount of material used should allow for students to work systematically through at own pace; material should be pre-recorded if administratively possible.

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3. A commonly used work-study term for this criterion.

4. Notice that 'responsibility' has not been included under 'accuracy'. Consultation with work-study engineers at Napier College, Edinburgh, suggested that 'responsibility' is generally considered to be a useful psychological criterion which enhances rapidity and efficiency indirectly.

Technical conditions of LL use: Equipment used should be adequate for task in terms of clarity, noise, reliability; all facilities should be functioning : monitor, intercom., teacher-call, record/playback, etc.; material used should be technically adequate e.g. quality of recording.

Some conditions can be linked to almost all assumed advantages, while other are more specific. For example, those concerned with training in self-criticism, and possibly with over- and under-learning, can be linked directly with the assumed advantage: "Each student can listen critically to his own voice."

From this point it can be said that some conditions have greater bearing on one of the three criteria of LL use, Speed (S), Accuracy (A), of Job Satisfaction (J), than the other two. Thus, each condition or use of facility is 'weighted' with Speed, Accuracy, or Job Satisfaction (that is, S, A, or J) criteria, or with any combination of the three. This relationship will be applied operationally in the following section on the observation of teachers' and students' use of the LL.

3.2.4 To summarize, the model for the analysis of LL use is built, firstly, on the utilization of facilities, which are weighted by one or more of the criteria for using the LL, and on the fulfillment of conditions underlying the utilization of facilities. The absence or presence of these conditions and the degree to which any facility is exploited then act as deciding factors in whether an assumed advantage is actually present in any LL session. In turn, the absence or presence of the different advantages then indicates whether the LL session can be said to have been held for reasons of Speed (cutting time/increasing practice per student), Accuracy (cutting waste/improving class performance), or Job Satisfaction, or indeed, any combination of these.

The model as described above is shown in its operational form on page 76 as Figure 3.4 : Operational Model for Analysis and Evaluation of LL Use.

3.3 The observation and analysis of LL use by teachers and students

3.3.1 Design

Having established a model for the analysis of LL use, we are in a position to return to the main theme of this chapter, namely, are LL's a largely wasted resource, and if so, to what extent is the actual use by teachers and students a contributing factor to this waste.

We have argued above (section 3.1.2) that in order to evaluate LL use in any LL session, a full assessment as to the absence or presence (and to what degree) of specific criteria such as those listed by Holec (op.cit.) and Anderson (op.cit.) is necessary. In order to carry this out and obtain basic data for any LL session in terms of teacher and student use, facilities available, material used, etc., it was decided to use a system of critical observation of LL sessions using assessment grids derived from the theoretical conditions and factors in LL use described above in section 3.2.3. It was felt that with sufficient training and experience of LL use, an observer would be able to carry out such a task, providing that person was equipped with detailed definition scales on which to base an assessment[5]. Such observation grids would need to be tried over a reasonable period and with a variety of levels, teachers, students and observers for there to be any indication of consistency. For this reason, it was decided to hold a major study using observation grids in one school and using one observer (the author), and then use a number of similar schools and trained, experienced observers. This was done not only to assess LL use in those schools, but also as a means of assessing the consistency of the grids as a measure of performance by teachers and students and the consistency of the

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5. There are a number of precedents to justify this procedure, for example, oral testing for Cambridge F.C.E. and C.P.E. examinations, and teacher training assessment grids used during practical teaching by trainers and examiners.

results of the analysis of the data produced by the use of the observation grids in the first study. It was felt that using the observation grids would be a valid means of assessing LL use in terms of the model on which the grids themselves were based. However, extra validity could be given if questionnaires based on the same conditions of use, use of facilities and assumed advantages were to be given to participating and non-participating teachers during the first study. This would mean that they could, in a sense, judge the validity of the criteria on which they themselves were to be judged.

In designing the study and the operational procedure, it was decided that it was necessary to produce basic data on LL use from the observation grids on a quantitative basis using absence/presence or defined value scale criteria rather than on a qualitative, good/bad, basis. This would increase the objectivity of the observations and also, given well-defined values and a reasonable degree of co-ordination between observers, the consistency of the data produced.

3.3.2 The First Study at the School of English Studies, Folkestone, Kent

i. Location and Subjects

The School of English Studies is a large, private English language school. It had nearly two hundred full-time students at the time of the study, divided into the 'General Course' and the more intensive 'Keyman Course'. 'General Course' students are over seventeen years old, usually in their late 'teens or early twenties, and will often be continuing their studies in Higher Education. There were about one hundred and sixty students at the time of the study (February 1979). 'Keyman Course' students are all over twenty-three years old, but tend to be in their late twenties to late thirties. They are usually sponsored by a company, government or agency.

'General Course' students stay three months or longer, 'Keyman Course' students from one month to the maximum three months. There were seventeen 'Keyman Course' students at the time of the study, divided into three groups.

There were thirty members of teaching staff, most of whom are qualified and/or have considerable experience in teaching English as a Foreign Language. Twenty-four were involved in full- or part-time teaching at the time of the study.

ii. Language Laboratories and their use

The school had one sixteen-place Cybervox LL which was about eight years old, and a new Tandberg IS9 LL with eight places. Both LL's were AAC[6] and the Tandberg had fast transfer to student machines from cassette input. The General Course used the Cybervox LL and the Keyman Course used the Tandberg LL. There was a full-time member of staff (non-teaching) in charge of both LL's, responsible for copying tapes, rectifying minor faults and routine maintenance. Both LL's had front-facing booths in rows. The Cybervox had the feature of aircraft-type seating with the student reel-to-reel deck beneath the seat and the controls alongside the seat. The teacher's console was well laid out and acoustics and noise level appeared to be adequate. Teacher sight lines were poor as chairs provided for the console were too low. The Cybervox LL was showing signs of age with increasing technical unreliability, but there was usually a surplus of machines and students could be moved without major disruption. The Tandberg had been newly installed and worked well. Layout was spacious. Input was either by

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6. That is, audio-active-comparative (see Chapter Two, Note 1).

tape- or cassette-recorder. Ergonomically, it seemed less well-designed than the Cybervox, as fifteen individual operations were needed to broadcast a programme. There were no problems of reliability with the Tandberg LL.

The General Course students used the LL once or twice a week (a twenty-five hour week), each session being from 45-50 minutes long in theory, though in practise a teacher could shorten a session or ignore it altogether. The Keyman Course students used the LL once a day (a twenty-seven and a half hour week), for 45 minutes or shorter, depending on the requirements of the class teacher. Both LL were used at all levels. As teachers change classes, the teacher with a LL session may not be the principal teacher of the class and may be supervising work in the LL assigned by the principal class teacher.

iii. Materials

As stated in 3.3.1 Design, it was decided to adapt the theoretical conditions of use and use of facilities to two forms for the study: Questionnaires and Observation Grids.

1. Questionnaires

There were seven questionnaires in all, distributed to the teachers at the school over a ten day period. As many questionnaires as feasible were given, allowing for teacher resistance and time factors, in order to cover as many aspects of LL use as were also covered by the Observation Grids.

Questionnaire 1. Teacher's Attitude to the LL as a Class Teaching Aid (Appendix I.1.) The design of this questionnaire was taken mainly from the York Study (Green, 1975). It was hoped that the results of this questionnaire would indicate the general attitude to the LL, its use, frequency etc., prevalent in the school, and when compared with observations of actual use, would show whether there was a marked contrast between attitudes and behaviour.

Questionnaire 2.1. Language Laboratory Features : Theoretical

(Appendix I.2.) . The theoretical features listed in this questionnaire were taken mainly from the facilities and functions listed in 3.2.3 above. Some features not currently found in LL design were added in order to discover whether teachers had considered that certain useful features might be missing from LL design, such as portability and separate student and master recordings.

Questionnaire 2.2. Language Laboratory Features : Actual

(Appendix I . 2.). This questionnaire contained a list of assumed advantages such as those given in standard works on the subject (see also 3.2.2 on this point).

Questionnaire 3. Language Laboratory Features : Drawbacks

(Appendix I.2.). The 'drawback' questionnaire was designed using areas of criticism and problem areas of LL use described in Chapter Two, in order to discover what teachers regarded as major and minor limitations in the class LL system.

Questionnaire 4. Language Laboratory : Use

(Appendix I.3.). This questionnaire was designed using the theoretical conditions of LL use (see 3.2.3 above). It was hoped that responses to this questionnaire would confirm the observation grids as valid measures of LL use, and would make it possible to identify certain conditions of use and LL facilities as being more important than others in class LL use.

Questionnaire 5/6. Language Teaching Materials : Ideal Profile

(Appendix I.4.).

Questionnaire 7/8. Language Laboratory Materials : Actual Profile.

(Appendix I.5.). The view was expressed in Chapter Two (section 2.4.7) that current LL materials were often some way from being ideal in the eyes of

teachers. The bi-polar scales attempted to measure teachers' attitudes to ideal materials and current LL materials using fairly standard descriptive terms set in opposition. Each term was defined (see Appendix I.6 for definitions). The same bi-polar scale was used in Observation Grid 4. below for the assessment of materials in each LL session observed.

2. Observation Grids

There were four observation grids, designed to cover as many aspects of LL use as possible, and using a variety of marking techniques. There was a degree of intentional duplication in the grids to provide a means of cross-checking and cross-referencing later if one set of data proved to be inadequate for full analysis.

Grid 1. Class Description. (Appendix I.7) The contents of this grid were derived mainly from the variables suggested by Holec (op.cit.). The terms were left undefined and judgement was left wholly to the subjective decision of the observer and/or class teacher.

Grid 2. Teacher use of LL during session. (Appendix I. 8)

Grid 3. Students use of LL. (Appendix I. 9)

Both these grids were central to the study. The list of conditions and use of facilities and other features was derived from the conditions of use and use of facilities described in 3.2.3 above. Each condition/facility/feature was given an operational definition on a six point marking scale (see Appendix 10 for definitions used). Zero on the marking scale was always taken to mean 'inapplicable in this session'. Each condition/facility/feature could then be given a value for each session by circling the number corresponding to the definition judged appropriate for that session by the observer. A large margin was left on the right side to allow for comments or clarification.

Grid 3/4. Materials used in session. (Appendix I. 9 and Appendix I.11)
The contents of this grid were derived from criteria to be found in standard teachers' handbooks on LL use (e.g. Rivers 1968, Stack 1966 and 1971). It was not intended that the data produced by this grid should be processed in any way, but that it should provide explanation and clarification if necessary for data produced by Grids 2 and 3 on Teacher and Student Use.

Grid 4. Use of materials in LL session. (Appendix I. 11)
The same bi-polar scales and definitions were used as for Questionnaires 5/6 and 7/8. Again it was hoped that this grid would clarify and explain findings of Grids 2 and 3 if necessary, and in addition could be compared with the results of Questionnaires 5/6 and 7/8.

Grid 4. Hardware used in LL session. (Appendix I. 11)
Equipment present and use of equipment was noted on a simple absence/presence adequate/inadequate, yes/no basis.

iv. Procedure

The study lasted two weeks. Questionnaires were distributed in order during that period. It was important that full co-operation of teaching staff should be obtained and that observation should not be seen as a covert inspection for the Principal of the school. The purpose of the study was explained at a meeting of all teaching staff, and Questionnaire 1. was given out at this meeting. The other questionnaires were given out on a daily basis so that each teacher had at least a day to complete each questionnaire. Some teachers found difficulty in completing Questionnaires 5/6 and 7/8 owing to the complexity of the definitions, while others simply did not like questionnaires and did not return them.

For the observations, teachers had been requested to hold LL sessions as usual and should not feel obliged to use it because of the presence of an observer if they had not planned to use it. In the event, only one teacher showed any sign of distress at the presence of an observer. Sessions lasted between thirty and fifty minutes, though the majority lasted between forty and forty five minutes. The same procedure for observation and marking the grids was followed in each case. This was:

Firstly Grid 1. was completed with the aid of the class teacher. As a number of classes were seen several times, much of this would in those cases have been duplication of information and so a simple reference number was given for later checking of information on the class description. Then the session was observed from the console and from other points in the LL by the observer and Grids 2, 3 and 4 were completed as the session developed. At times the observer listened to those students being monitored by the teacher, at other times the observer listened to the class as a whole (classes number from 4 to 13 students, so general listening was possible), and at some points the observer would request monitoring of specific students. Some scales could not be completed until late in the session or until the end of the session. There was usually some discussion with the teacher to clarify specific points on the class behaviour or on a technique used by the teacher, or on the use of special materials, but for the great majority of the time in any session the teacher was left entirely free to conduct the session. For each LL session, therefore, there was a set of four completed grids, which constituted the basic raw data on that session.

The ordering of Results and Discussion of Results will be as follows:

1. Questionnaires : Results; Discussion of Results
2. Observation Grids : Data; Analysis of Data; Results; Discussion of Results.

v. Results of Questionnaires

Numbers of returns were low (13 to 23) and not always the same teachers returned the questionnaires. No statistical tests of significance were made and no greater claim is made for the results than that they are indicative of attitudes and beliefs held at the school on LL use. The results for each Questionnaire are given in the annex to Chapter Three (pp.99-109)

vi. Discussion of Results of Questionnaires

Questionnaire 1. Teacher's attitude to the LL as a class teaching aid

All teachers (N=13) agreed or strongly agreed that LL sessions were useful and that the LL helped pronunciation. There were no other clear cut patterns. The LL was also felt to be useful at all levels. Session length preferred was thirty minutes. Section 1.3 (grading exercises according to level for value in LL sessions) appeared to confuse some teachers owing to its poor layout. All teachers felt it was more profitable for students to work in their own time. These responses, particularly the last point, are in line with the attitudes and approaches expressed in the last ten years by writers such as Dakin (1973) and described in Chapter Two of this work, favouring a guided self-access library approach to LL use and also to its use at all levels. The implications of the potential conflict of these views with actual LL use by teachers, and its effects, will be discussed more fully in section x. Discussion of results of Observation Grids, below.

Questionnaire 2.1. Language Laboratory Features : Theoretical

Essential features were put first in descending order of priority: teacher deal with individual problems; self-criticism; simplicity of operation; privacy; variety and constant model; self-pacing. However, it was felt on discussing the completed questionnaires with teachers that it

would be more realistic to conflate Essential and Highly Desirable categories. This had the effect of adding three items to the list of priorities: student works 100% of time and answers all questions; master copy for review; teacher plays mediating role. It also had the effect of re-arranging the first list of priorities so that the first five became : teacher deal with individual problems; self-criticism; privacy; self-pacing; variety.

The features of "portability" and "each student should be able to carry away a record of his/her own performance" were in the Unimportant/irrelevant/wasteful category. If self-criticism is considered so important, why, one wonders, is the latter so unimportant. In written mode, after all, students carry away (corrected) versions of their own performance for recall and review. It could be that teachers simply had not given thought to the implications and were answering within their own terms of reference and experience. Thus, they could not imagine what form this record would take and where it would fit in with the present structure of learning spoken language.

The importance given to the role of the teacher, both for individual work and for mediation, has a direct bearing on the findings of the observation grids, particularly those of teacher and student use, and will be discussed further in sect. x. Discussion of Results of Observation Grids, below.

Questionnaire 2.2. Language Laboratory Features : Actual

The teachers confirmed the assumed advantages given in section 3.2.2, above, eliminating three which are found in the literature on the use of the LL, but which have either no advantage over the tape-recorder (variety; untiring, authentic model) or have doubtful validity (better concentration).

Questionnaire 3. Language Laboratory Features : Drawbacks

The results indicate the reaction of some teachers to this questionnaire. Some items were felt to be 'not true'. This category was allowed to be written in and was included with the 'not a drawback' category.

No conclusions could be drawn from the 'major' category. This confirms the very positive attitude to the use of the LL in general in the school. This attitude was perhaps a reflection of the fact that agitation in support of LL use had obliged the Principal to replace an obsolete LL the previous year instead of simply abandoning a proportion of LL classes. The large 'Major or Minor Drawback' category, however, confirms the attitude taken in the literature by most writers, that the LL is not a panacea for spoken practice problems, but had limitations and problems of its own which must be taken into account and minimised. For example, the 'major' drawback of 'limited time per student' balances the 'Essential Feature' of Questionnaire 2.1 and 'Major Advantage' of 2.2. that the teacher can deal with student problems individually. The 'Not a drawback/Not true' categories: class disruption; teacher/student communicate via headset,suggest that the LL is a welcome change of scene for many teachers, and that some may be willing to play an active teaching role even via the headset (compare this with the already mentioned positive feature of the teacher playing a mediating role between the LL and the student in Questionnaire 2.1).

Questionnaire 4. Language Laboratory : Use

It was unfortunate that returns were low for this questionnaire (N=18). The role of the teacher was again stressed in the high (N=17) rating for: "All students should know how and when to use the 'T' call". The items most closely related to library use, that is, pre-recording, and choice of materials and activities, come low on the list of priorities. When taken with other low priority items, that is, notes on student errors, direct follow-up, it may be

that teachers were giving answers which they felt reflected their own performance and those of the students in the class LL rather than the more ideal suggestions of writers on LL use from which the items were taken.

Questionnaires 5/6 & 7/8. Language Teaching Materials : Ideal Profile and LL Materials : Actual Profile.

Examples of profiles are also given in Appendices 12 and 13. For ideal materials, the trend is from left to right as the level becomes higher, and there is a broad consensus on most scales at all levels. The greatest divergence of opinion appears to be at Beginner and Elementary levels, as was suggested in the discussion of materials and approaches to language learning in Chapter Two. As numbers of returns were so small, no further analysis was carried out on this questionnaire or on the results of the questionnaire on current LL materials (Questionnaire 7/8). In this latter questionnaire, there was also a trend from left to right, that is from plus to minus, though not so marked as for Ideal Materials, nor is there the same consensus for higher levels. The consensus for current LL materials at Beginner and Elementary levels, unlike that for ideal materials, is well over to the left, indicating structural, closely-controlled, habit-based learning materials.

The implications of the results of these questionnaires will be discussed further in relation to the findings of the same scales which were used to assess materials as used in LL sessions and which formed part of Grid 4. (section vii. below).

While no conclusions were drawn from the results of the questionnaires, given the reasons expressed in section v., in general terms, the results indicated the following:

i. the generally positive attitude to LL use in the school

ii. the possibility of conflict between attitudes to teacher role and teacher/student relationships on the one hand, and the effect of their application in the LL on the other. That is, how great a degree of responsibility and independence is the teacher prepared to give to the students, and is the teacher able and willing to give students training in the structure and pronunciation techniques which current LL materials appear to demand, and which the LL appears (in class mode at least) to be well suited to[6]?

iii. support for the theoretical conditions and assumed advantages used as a basis for the assessment of the same teachers' performance in the LL. That is, there is apparent harmony between teachers' criteria for actual LL use, and criteria used for the assessment of the same teachers' performance.

vii. Observation Grids : Collection of Data

Thirty nine sessions were observed over a two week (ten working day) period. Seventeen different teachers were observed. Observations were carried out following the procedure described in section iv., above, and produced data on four grids for each session observed.

Grid 1. Class Description (Appendix I.14. for full data).
This grid produced descriptive data which was used to explain and clarify data from Grids 2 and 3, after analysis. As several classes were seen on a number of occasions, some of the information was inevitably duplicated.

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6. This point is argued fully in Chapter Two.

The analysis of this data will be also used in section x. Discussion of results.

Grid 2. Teacher use of LL. and Grid 3. Student use of LL. (Appendix I. 15 and Appendix I.16 for full data).

These grids produced a quantitative datum on each scale. These collected data were then analysed using the theoretical model described in section 3.2, above, following the method described below in section viii. Analysis of data.

Grid 3. Materials used. (Appendix I. 17).

This grid produced quantitative and descriptive data for each LL session. The data was used to clarify or explain analysed data from Teacher and Student Use grids for a particular session. The materials used were, in the great majority of sessions, standard published materials which have been in use in the LL for some years, and normally followed the pattern of dialogues plus three- or four-phase drills. Two classes involved listening with note-taking (sessions 13 and 22).

Grid 4. Use of materials. (Appendix I. 17).

This grid produced quantitative data from the bi-polar scales which was tabulated and analysed for comparison with Questionnaires 5/6 and 7/8. The analysis of the data produced by this grid will be discussed in section x. Discussion of results, below.

Grid 4. Equipment used.

This grid produced descriptive data for each session which was referred to when necessary in the analysis of Teacher and Student Use of the LL in any single LL session. The equipment used was technically adequate for the tasks demanded of it. If anything, during the thirty-nine sessions observed, it was under-exploited, and no use was made of group or conference facilities, or of separate inputs to give both choice and variety[7].

viii. Observation Grids : analysis of data and results

The data from Grid 2. Teacher Use of LL, and Grid 3. Student Use of LL, together with optional data from Grid 4. Materials and Equipment Used was analysed using the model described in section 3.2 in order to ascertain whether individual LL sessions could be said to have fulfilled criteria of speed, accuracy of job satisfaction, and thus, whether the LL could be said to have been fully exploited by teachers and students.

When the model was applied operationally, quantitative data on the conditions of use and facilities were produced, and these were grouped according to their bearing on each assumed advantage using the weighting given to each condition/facility for Speed (S), Accuracy (A), or Job Satisfaction (J) as a guide. As stated in 3.2.3 and 3.2.4 above, some conditions/facilities appear to have a bearing on all three work study criteria, and so were given equal S/A/J weighting, but, at the same time, were more relevant to a single assumed advantage than to others and consequently were attached to that advantage. The Operational Model of Assumed Advantages, Grid Conditions and S/A/J weightings is given in Figure 3.4 below. It will be remembered that Assumed Advantages were also grouped according to the work study criteria of Speed, Accuracy and Job Satisfaction (section 3.2.2 Figure 3), thus, the exploitation of assumed advantages establishes whether the respective practice criteria are being fulfilled, and a qualitative assessment in terms of Speed, Accuracy or Job Satisfaction is then possible.

Each LL session was then analysed in the way described above (App. I. 18) and assessments made on what the rationale of each session appeared to be in terms of Speed, Accuracy and/or Job Satisfaction. Two examples of the full analytical process are given in Table 3.1 below, for Sessions 19 and 39.

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7. Compare this with the similar findings of Anderson (op.cit.) in the results of questionnaires from Swedish schools, described and discussed in section 3.1.1 of this chapter.

Figure 3.4 Operational model for analysis and evaluation of LL use

Assumed advantage	Conditions of use[9]/ use of facilities	Practice weightings
1. Each student can answer all questions and work all the time	LL work co-ordinated	J
	Teacher (T.) 'happy' use of LL	S/A/J
	T. likes using LL	J
	T. experienced	S/A
	material indexed	S
	start-up time short	S
	Student (S.) interest/time	J
	S. participation/time	J
	LL work purpose-designed	S/A
2. Each student responsible for his own performance	All S. 'happy' manipulating drills	S/A/J
	All S. clear as to objectives	S/A/J
	Frequent use of 'T' call	J
	Discriminating use of 'T' call	S/A
	Pedagogical monitor	A/J
	Analysis/diagnosis of pron.errors	S/A/J
	Anal./diag. of str. errors	S/A/J
	Instructional monitor	S/J
3. S. can listen critically to own voice	All S. able to criticise	A/J
	All S. capable of self-crit.	A
	S. tend underlearn	A
	S. tend overlearn	S

Figure 3.4 (cont'd)

Assumed advantage	Conditions of use[9]/ use of facilities	Practice weightings
4. S. can work at own pace	All S. 'happy' mechanically	S/J
	All pre-recorded	S/J
	S. control/time	J
	S. able to vary pace	S/J
	S. 'happy' with pre-set pace	J
	Variety of pace	J
5. T. can deal with individual students	T. monitor S./time	A/J
	Individual/general monitor	S/J
6. LL can provide variety of programmes and activities	Recorded materials integrated	S/J
	Variety of materials	J
	Variety of activities	J
	LL functions exploited	J
7. S. can work in privacy of booth	Acoustics/noise	J

9. All abbreviations and conditions are defined and explained in operational terms in Appendix I.10.

Table 3.1 Examples of Analysis Resulting from Application of the Operational Model

Session 19

Advantage 1. : J and S weightings predominate. Advantage obtained.

Advantage 2. : Mixed weightings. The advantage is not fully obtained as the teacher must spend so much time telling a number of students what to do.

Advantage 3. : Many of the class are unable to take advantage of the LL compare facility.

Advantage 4. : All weightings. The advantage gained by pre-recording is largely cancelled by a monotonous pace of work throughout the session, with only a short song to break it at the end. High motivation shown by high 'interest' score.

Advantage 5. : C.f. Advantage 2. Most communication with students is instructional.

Advantage 6. : Very limited. Advantage not exploited.

Advantage 7. : Obtained.

Conclusions : While Assumed Advantages 1, 5 and 7 are exploited, those of self-criticism, self-responsibility and variety are not. There is a clear predominance of Job Satisfaction weightings, which, without the other weightings and consequent advantages could be interpreted as simply giving the students a change of scene and activity with no clear pedagogical objectives.

Table 3.1 (cont'd)

Session 39

Advantage 1. : Fully exploited. All weightings.

Advantage 2. : Fully exploited. All weightings.

Advantage 3. : Adequately exploited. 'A' weightings predominant.

Advantage 4. : Fully exploited. Forty minute session[8]. High interest and participation values, although single pace throughout on tape.

Advantage 5. : Fully exploited. C.f. Advantage 2. Pedagogical communication encouraging self-criticism and responsibility.

Advantage 6. : Not exploited.

Advantage 7. : Adequate. Cassette hiss.

Conclusions : All Assumed Advantages except 6. (Variety) exploited. While all weightings are present, emphasis is on accuracy and self-responsibility (Job Satisfaction) in this session.

Summarised results of all sessions in terms of work-study criteria are given on page 81 below.

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8. It will be noted that descriptive data from other grids is also used in the analysis as was stated in vii. Observation Grids : collection of data.

ix. Observation Grids : results of analysis of data using Operational Model (Figure 3.4.)

The data from all observed LL sessions was processed in the same way as those described above, Sessions 19 and 39. The data for all sessions and descriptive results are shown in Appendix I.18.

The results in terms of the Speed, Accuracy and Job Satisfaction criteria for each session were as shown on page 81, Table 3.2, below.

Reading across the totals of the columns from left to right, eleven sessions were carried out without fulfilling criteria of either Speed or Accuracy; three sessions primarily for objectives connected with the rapid attainment of a teaching goal or with maximising practice (Speed). Nine sessions were held with the same aims in mind as the last, but with the addition of the Job Satisfaction criterion. Four sessions were held primarily for reasons of Accuracy, but with the Job Satisfaction element also present. One session was held which fulfilled the criteria of both Speed and Accuracy. Nine sessions were observed as being held for reasons of Speed and Accuracy, and also had the Job Satisfaction element included. In two sessions, no apparent motives for holding the sessions could be discerned (see Note 10, below).

x. Observation Grids : discussion of results.

It was stated in Chapter Two (2.1 and 2.2) that the design of the AAC LL was closely linked to the practical application of behaviourist learning theories and an audio-lingual or structural approach to language teaching. The facilities central to the forms of practice implied by the above were those which offered self-responsibility and self-criticism by learners and a constant, untiring model to provide massive repetition and articulatory and structural manipulation practice until correct speech habits had been formed.

Table 3.2 Results of Analysis of Data using the Operational Model : First Study

S = Speed; A = Accuracy; J = Job Satisfaction. N = 39.

Criteria	J	S	A	J/S	J/A	S/A	S/A/J	None[10]
Session Number:	1	12	-	6	8	13	15	9
	2	30		10	17	1	23	16
	3	33		11	22	session	24	2 sessions
	4	3 sessions		14	26		25	
	5			19	4 sessions		27	
	7			20			31	
	18			21			32	
	29			28			34	
	36			35			39	
	37			9 sessions			9 sessions	
	38							
	11 sessions							

10. Sessions 9 and 16 were the same class of beginners and were in the LL for only the second and third times. It was unfortunate that the teacher did not have the objective of instructing the learners in LL use as a priority in both sessions.

Any analysis of LL use based on the above principles would give priority to the assumed advantages 2, 3 and 4 (that is, responsibility, self-criticism, own pace; 'constant, untiring model' was rejected as having no significant advantage over the tape-recorder by the responses of teachers to Questionnaire 2.2 reported above). This would mean, in terms of the LL sessions observed, that those sessions with S, A and J weightings fully represented i.e. self-pacing (for speed), self-criticism (for accuracy), and self-responsibility (for job satisfaction) would fulfil the criteria of the underlying principles of LL practice, and in doing so, it could be said that the LL had been exploited in the manner for which it is fitted for performing the task of giving practice in listening and speaking.

From the results of the study shown in Table 3.2, above, only nine sessions can be said to have fulfilled all three criteria, as indicated by the exploitation of facilities and the fulfillment of conditions of use. With regard to these nine, moreover, there are two points to be made using data from Grid 1. (Appendix I.14) and Grid 4. (Appendix I.17).

i. Seven of the nine sessions were those classes which had daily use of the LL (i.e. 'Keyman' Course classes);

ii. Three of the nine sessions did not involve the use of structural drills or pronunciation practice. Session 15 was largely taken up with role-playing exercises, Session 23 with 'active' listening, and Session 25 with interviews and situations.

There were fourteen sessions in which facilities were partially exploited:

J/A : 4; S/A : 1; J/S : 9.

It may be, of course, that in these sessions the teachers' motives in using the LL were precisely limited to those indicated, though it is difficult

to see how J/S criteria (i.e. speed and job satisfaction) can be justified without the Accuracy criterion of improving performance.

Can the remaining sixteen sessions be dismissed as simply wasting time, effort and resources ? One answer might be that the principles described above for maximum utilization of the LL are, as we have seen in Chapter Two of this work, no longer held in the esteem that they once were, and the decline in the popularity of the LL in many quarters is linked not only to its failure to live up to claims made for it, but also to a decline in the popularity of the structuralist approach to language teaching. The high number of sessions which were held primarily, it seems, for reasons of 'job satisfaction' could then be explained by a shift towards a more humanist approach to language teaching, and by the emphasis on innovation and originality in the use of the LL without linking it to any particular theory or approach. The teacher may want to use and involve the intelligence of the learner in the learning process in a manner somewhat different from the disciplined training in LL skills required for efficient LL use by learners. This may lead to a reluctance among those teachers who seem to prefer functional and creative materials in Questionnaire 5/6 (Ideal language Teaching Materials, see section v. above) to spend time on giving the learners the necessary rigorous but low-level training in self-criticism, self-responsibility and self-pacing as basic skills that the use of the LL and the structural approach (clearly still in widespread use in LL materials) require.

This attitude, however, in no way excuses teachers who fall into 'Job Satisfaction' only category. If one had wished to place the failure of the sixteen sessions at the door of materials and techniques, one would have expected to find structural drills or pronunciation training materials in all nine fully exploited sessions, and non-structural materials in the 'J'

only category. From Appendix I.14. Grid 1. Class Description, it is clear that this is not the case, and that the 'J' only category is composed entirely of sessions in which structural drills were used. In contrast, the nine fully exploited sessions contained a mixture of structure drills and dialogues (both 3 and 4 phase drills), role-playing activities, listening (that is, 'active' listening), and interviews and situations for F.C.E. practice.

For teachers whose approach is based on a cognitive theory of language learning, errors may be part of the learning process and not the anathema that they are in the structuralist approach. Since, also, a carefully graded structural progression with tight lexical control is not a sine qua non of a semantic/functional approach or course, the question of error-free performance in pronunciation or grammar may be less important than the desire to give practice in chunks of language selected for 'usefulness' with which the learner can communicate with others. From the self-pacing point of view, while in a bare majority of sessions (twenty), conditions associated with self-pacing appear to have been fulfilled, in many sessions observed there was a marked tendency for students to underlearn, by rushing through the drills and exercises, with little control of pace or learning rate.

The criterion of Job Satisfaction has been linked to the assumed advantage of self-responsibility. The teacher has, in effect, little real control once a LL session has begun: he can only control what is put into it and prepare students adequately before the session. From then on, in theory at least, he gives up effective responsibility to the students for their performance. In many of the sessions observed, as the results show, it was unclear whether the students either wanted or could take this responsibility. While the teacher may be completely consistent with his own principles of how languages are learnt and taught and the most effective

methods to apply, in neglecting to give students a training in how to use the responsibility given to them, he effectively makes no one responsible for the session and gives the students little more than a change of scene, voice and activity.

We have already seen that teachers are not altogether happy with current LL materials and the analysis of data obtained from the bi-polar scales used to assess materials as used in LL sessions confirmed the prevalence of structurally based, closely controlled, habit formation type, artificial materials in use in LL classes. One might suggest, comparing questionnaires (Questionnaires 5/6 and 7/8) and the observed data on materials used that some teachers, especially at Beginner and Elementary levels are failing to exploit the LL potential since they are not happy with current LL materials (at least those available at the school[11]) and the principles which underlie those materials, and so allow the machine and the materials to take over 'responsibility' for the LL session. As was stated in Chapter Two (2.4.7), responsibility in terms of structural practice and practice in pronunciation is not the same as responsibility for communication i.e. saying what you mean in a 'meaningful' and appropriate way.

A frequent sign of the teachers' over-involvement with the self-instructional process in the LL was when the teacher was occupied for much of this session time with either correcting students' pedagogical errors, or with solving students' mechanical problems in manipulating switches. Perhaps this was intentional on the part of some teachers, a desire (unconscious?) not to let the students out of his/her control, or that not to be active was somehow shirking. While this cannot be proved at this time, certainly half the teachers observed kept a very high degree of control and even attempted to teach the

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11. Compare the materials used with those of the later Second Study (3.3.3) Grid 4 (p.95).

class as a whole via the intercom. system in several cases. Given the responses to Questionnaire 3 on the 'drawbacks' and limitations of the LL this is not at all surprising.

'Class disruption' and 'teacher/student communicate via headset' were considered either 'not true' or 'not drawbacks' by most teachers. Furthermore, in responses to Questionnaire 2.1, it was also considered important by the majority of teachers that the teacher should play a mediating role between the LL and the student. Might one speculate that while the school is noted for its dynamic teachers, it could be that many of them do look on the LL as a break from the long and arduous teaching timetable, but precisely because of their active and dynamic approach they will not let the LL take over from them.

Self-criticism and self-responsibility are also linked to integration and the degree of preparedness of students so that they can take full advantage of the facilities offered by the LL. This means not only careful training of the students in LL use, in the function of the LL, and in the objectives of a particular session, but also a degree of co-ordination of LL work with class work. In the study, while the facility of students being able to work all the time was exploited in most sessions, there was only a barely adequate relation of LL work to class work in many classes. Once again, this may indicate the problem of how to integrate the mechanical LL and 'mechanistic' system of language learning into a humanist classroom and approach to language teaching. The conclusion for several sessions was that 'job satisfaction' did not even lie with the students, but rather with the teacher, particularly in those sessions when the teacher recorded directly from the console microphone onto the students' machines. With present LL equipment it is difficult to see how a functional/interactive/flexible approach and associated work can be successfully integrated into a LL system (c.f. the role assigned to the LL in the Introduction to the textbook 'Strategies' described in Chapter Two section 4.7). Teachers' responses in their

questionnaires on LL features (Questionnaire 2.1) indicated that they thought it would be highly desirable for each student to have a copy of the master readily available for review. At present, this is only possible through each student having his/her own copy on cassette (an expensive solution), or through library systems.

xii. Summary and Findings

In this first study, we have tried, by means of observation grids, supported by questionnaires, to assess the utilization and exploitation of the class LL in a large private language school, as representative of LL use in adult E.F.L. teaching. We have argued that there are conditions on the use of the LL based on underlying principles, which when applied to utilization of equipment and facilities incorporated in the design of the LL can bring about the realisation of certain assumed advantages. We have argued that the presence of such an assumed advantage is thereby dependent not only on the use of a facility, but also on the correct or effective use of that facility, which is in turn dependent on the fulfillment of conditions related to the functioning of that facility. We have also argued that the rationale of LL use can be reduced to the three basic criteria used in the assessment of the performance of any tool - Speed, Accuracy and Job Satisfaction, and that if the LL is not exploited in such a manner as to fulfil the first two criteria, then the burden must fall on the user of demonstrating how the LL is suited to the use and approach in both technological (facilities) and pedagogical (functions) terms. The argument is therefore twofold. Firstly, the design features and limitations make the LL more suited to certain types of practice and this type of practice is consistent with some approaches and materials rather than others. Secondly, in class mode, the LL must be fully integrated in the teaching syllabus if it is to be used, with careful training in the necessary skills, even if this means compromising principles held by the teacher. To recall the remark made by Jakobovits and quoted in Chapter Two

section 2.2, we should not after all be too bound by theories and principles in practical teaching, especially if the practical method does produce results.

The findings of the study can be summarised as follows:

1. The LL had a marginal use for many classes at all levels, and was not being exploited fully using the facilities offered by the equipment as fundamental to its design, (c.f. Green 1975, and the findings of the York Study quoted in 3.1.1 of this chapter).

2. The LL was fully integrated and its facilities were fully exploited mainly in those classes which used the LL once a day, every day, (c.f. the findings of Lorge's (1964) study in New York schools described in Chapter Two).

3. Full integration and exploitation of the LL was not necessarily limited to materials and methods concerned with drilling structures or practising pronunciation, but was limited only by the imagination and skills of the teacher, and the degree of preparedness and responsibility which the teacher was able to give the learners.

4. The aspects of LL use which caused the LL to be under-exploited most frequently were the absence of self-responsibility and self-criticism.

5. A stated aim of the first study (i.e. this study) was to establish whether the observation grids and definition scales used were sensitive enough or wide enough in scope to bring out differences in teacher use, student use, materials and equipment used between LL sessions in as objective a manner as possible. It was considered that while the grids did cover all aspects of LL use, and also received support from the responses to questionnaires given to teachers, there would have to be certain changes made if there was to be a consistent

assessment by a number of observers at different schools in the Second Study (see below).

The main changes felt to be necessary were:

i. Definitions for Teacher and Student Use scales should be more precise and should be expanded and clarified in some cases.

ii. Grids 3 and 4 should be 'tidied up' with regard to layout.

iii. The single scales used for Materials Used should be replaced by simpler yes/no/unclear and good/adequate/poor scales.

3.3.3 The Second Study at C.E.S.C., B.E.S.C. and Davies' School, Cambridge

It was hoped that full studies could be carried out a three comparable English language schools. In the event, only two schools, the Colchester English Study Centre and the Bedford English Study Centre cooperated fully and the third school provided data on only one session.

i. Location and Subjects

The second study took place at the Colchester English Study Centre, Colchester, the Bedford English Study Centre, Bedford, and the Davies School of English, Cambridge. The first two are well-equipped, modern schools specialising in English for Specific Purposes for small groups of students, and roughly comparable with the 'Keyman' Course at Folkestone in terms of students, intensity and LL utilization. Teachers at CESC and BESC are well-trained and qualified. The Davies School is a member of the large Eurocentre organisation with schools throughout Britain and the world. It has General English courses similar to the 'General' Course at Folkestone. Thus, it was intended from the outset that both aspects of the Folkestone organization should be represented in the Second Study (though poorly represented by Davies, unfortunately).

ii. Language Laboratories and their use

Both CESC and BESC had Cybervox LL's as used by the General Course in Folkestone. Both were well maintained and reliable. Students used the LL once a day for approximately 40-45 minutes, but as in Folkestone, teachers could be as flexible as they wished in practice. Students at the Davies School used the LL once or twice a week, following the same pattern as the General Course at Folkestone.

iii. Materials

1. No questionnaires were given for the Second Study. Not only would this have been difficult for operational reasons, but it was felt that the original purpose of the questionnaires in gaining information and increasing the validity of the Observation Grids had been largely fulfilled in the study at Folkestone.

2. Observation Grids (see Appendices I. 19 - 22)
The Grids were changed in accordance with the findings of the study at Folkestone and described above in section xi. to give better layout, more precise definitions for grid scales and clearer scales for Materials Used in LL Session. Some conditions/facilities in Grids 2 and 3 on Teacher and Student Use of the LL were also expanded and clarified to increase consistency between observers.

iv. Procedure

The author visited each school and explained the use of observation grids and definition scales to the observers. The procedure followed was that described in 3.3.2 iv. above. The author observed one full session with observers in CESC and BESC to increase the consistency of observation procedure and to reassure himself that the Observation Grids were working in different environments. Each session was then noted by an observer using the four grids, and in most cases, the same class was noted by two observers,

though at different times. The completed grids were then sent for analysis to the author.

On the whole, schools found it difficult to cooperate fully, in the case of BESC and CESC because of time and staffing difficulties, and in the case of the Davies School, because the teacher involved in making observations did not have the knowledge or experience to complete the grids adequately. Those teachers from BESC and CESC who did take part in the Second Study indicated by their performance that the procedure and the techniques for the completion of the Observation Grids were indeed transferable.

v. Observation Grids : collection of data

Seventeen sessions were observed in the three schools (seven in BESC, nine in CESC and one in Davies School). Six observers took part and observed a total of nine teachers. As in the First Study, data was produced on four grids for each session observed.

Grid 1. Class Description : Several classes were seen by different observers and the same class on different occasions by the same observer. This helped determine consistency for both the procedure, the grids and the analytical approach (Appendix I.23).

Grid 2. Teacher Use of LL and Grid 3. Student Use of LL : Produced quantitative data as in the First Study at Folkestone. These data were then analysed using the same process (Appendix I.24 and Appendix I.25).

Grid 3. Hardware Used : Produced basic descriptive data which was referred to when necessary in the analysis of Teacher and Student Use. As in the First Study at Folkestone, the equipment was, if anything, under-exploited.

Grid 4. Materials used in LL Session : Descriptive data on single scales of yes/no/unclear and good/adequate/poor were used to clarify or explain data from Teacher and Student Use grids and the data was not tabulated.

The data from the differential index on the bi-polar scales was tabulated for comparison with the data on the same scales in the First Study (Appendix I.26). Materials used were listed with the data of the scales.

vi. Observation Grids : analysis of data and results (for full data see Appendix I.27).

The data from sessions observed were analysed using the Operational Model as in the First Study at Folkestone. The results, in terms of the fulfillment of the Speed, Accuracy and Job Satisfaction criteria, for each session were as follows:

Table 3.3 Results of Analysis of Data using the Operational Model : Second Study

S = Speed; A = Accuracy; J = Job Satisfaction. N = 17.

Criteria	J	S	A	J/S	J/A	S/A	S/A/J	none	insufficient data
session number :	4	8	-	2	5	-	3	1	11
	15	9		7	16		6	1 session	1 session
	2 sessions	2 sessions		10	17		12		
				14	3 sessions		13		
				4 sessions			4 sessions		

Reading across the totals of the columns from left to right in Table 3.3 two sessions are indicated as having been held without fulfilling criteria of either Speed or Accuracy. Two sessions were held for objectives connected with the rapid attainment of a teaching goal or with maximising practice (Speed). Four sessions were held with the same aims in mind, but with the addition of the Job Satisfaction criterion. Three sessions were held primarily for reasons of Accuracy, but with the Job Satisfaction element also present. Four were

observed as being held for reasons of Speed and Accuracy, and also had the Job Satisfaction element included. One session was held for no apparent purpose, and there was insufficient data on one session to draw any conclusions.

In the seventeen sessions observed, there were seven separate groups of students. These were:

Session 1.	Sessions 11 (insufficient data), 12, 13.
Sessions 2, 3, 5, 6.	Sessions 14, 16, 17.
Sessions 8, 9. 10.	Session 15.
	Session 7.

Although, in practice, the goals may have been different for each LL session, the data indicates a consistency from the same observers for the same group with the same teacher from one session to another in sessions 8, 9 and 10 (S), and sessions 16 and 17 (J/A), and consistency with different observers for the same groups for sessions 12 and 13 (S/A/J). It is not surprising that sessions 2, 3, 5 and 6 show little consistency in these terms, as three different teachers were involved. Indeed, had there been a close similarity of data and results, the ability of the observer to use the grids fully and flexibly might have been questioned.

3.3.4 Comparison of data and results of the First Study and Second Study

Grid 1. Description of Class : The courses at CESC and BESC were more specialised than the majority of classes at Folkestone, and most had one LL session once a day. Most observers in the Second Study interpreted Class Description terms in different ways from the First Study, but as there was ample cross-referencing between grids, the analysis was not affected, and in fact, extra data was gained by this. The socio-cultural backgrounds of students were generally similar, while aptitude and motivation of students at CESC and BESC were similar to those of the Keyman Course students at

Folkestone in the First Study. The teachers at CESC and BESC who were observed, were, on the whole, better qualified and had had more experience than the Folkestone teachers in LL use (with several notable exceptions, it must be added).

Grid 2. Teacher Use of LL and Grid 3. Student Use of LL : From the comparison of the results shown in 3.3.2 section ix. and 3.3.3 section vi., the proportional distribution of results in terms of objectives is as follows:

First Study N = 39

Second Study N = 17

Criteria	Number of Sessions	
	First Study	Second Study
Accuracy only	0	0
Job Satisfaction and Accuracy	4	3
Speed only	3	2
Job Satisfaction and Speed	9	4
Speed and Accuracy	1	0
Job Satisfaction and Speed and Accuracy	9	4
None	2	1
Job Satisfaction only	11	2
Insufficient Data	0	1

A comparison of these results indicate that on the whole the criteria of LL use were more often fulfilled in the Second Study at CESC and BESC than in the General Course sessions in the First Study at Folkestone. To draw firm conclusions from the comparisons, however, far more observation from the Second Study would have been needed. The results are in no way surprising, given that we have already stated in 3.3.3.i, that there is a resemblance between

the type of courses at CESC and BESC and the Keyman Course at Folkestone.

Grid 4. Materials used in LL session : The most marked difference between First and Second Studies is in the materials used. The lists of materials given in App. I . 17 (First Study) and 26 (Second Study) indicate the difference in titles between materials used in Folkestone and materials used in CESC and BESC. The data from the bi-polar scales also shows the difference in "nature" of many of the materials used. The figures shown in App. I. 17 and App. I. 26 for the bi-polar scales of Grid 4. in the First and Second Studies indicate the different types of materials chosen by teachers in the Second Study from those used in the First Study, and the manner in which it was used. In the First Study, there is greater emphasis on structural, habit-formation based materials, while the range of figures in the bi-polar scales for the Second Study indicates the lower emphasis on such materials and such techniques. It must be remembered, however, that more classes at lower levels (beginners and elementary) were observed in the First Study than in the Second Study.

The above findings confirm the view that at Folkestone, the LL was regarded as a tool for structural practice, whether this was integrated or not, while at both CESC and BESC, the bi-polar scales show more creative and independent use of the LL with emphasis on listening and role-playing activities, as well as the pronunciation and intonation exercises of the type found at Folkestone. This last point supports Finding 4. of the First Study, namely, that integration and exploitation of the LL is limited only by the imagination and skills of the teacher, and the degree of preparedness and responsibility which the teacher is able to give to the learners, and is not necessarily limited to materials and methods concerned with drilling structures or practising pronunciation.

All Grids. : On the whole, the data obtained from the observation grids in the Second Study indicate, after analysis, that the LL was better exploited in terms of practice objectives of speed and accuracy, if not job satisfaction at

BESC and CESC than in the General Course at Folkestone, and was exploited equally well, and for similar reasons, and with similar materials as in the Keyman Course at Folkestone.

It was stated in 3.3.1, above, that the purpose of the Second Study was not only to assess the use of the class LL in different language schools, but also to assess the consistency of the grids as a means of measuring performance by teachers and students. It was unfortunate that numbers of observers and sessions observed in the Second Study were too small to make any firm conclusions possible, but from the data and the results, it appears that the grids can be used to coordinate observation of LL sessions and to provide detailed data for analysis on all aspects of LL use, and finally, to produce a qualified assessment of LL use in terms of practice objectives for any single LL session.

3.4 Discussion of Findings and Comparison of Studies of LL Use

3.4.1 The notion of 'appropriate' use of the LL

The theme of this chapter has been to examine whether the LL, as used by teachers and students in English language schools, is largely a wasted resource. While we may say from the findings of both studies that the LL is better exploited when used frequently, and when teachers are skilled and students well trained in its use, it still appears that the LL is greatly under-exploited as a language teaching tool in terms of the practice criteria which have been used for assessment throughout the studies. Adding all observed sessions together, only thirteen out of fifty-six sessions can be said to have exploited the facilities of the LL adequately according to the criteria. We have suggested that the design of the equipment may be inappropriate for the type of practice demanded by current theories and approaches to language

teaching, and indeed, writers such as Dakin (op. cit.) make it clear that the future of the LL for them lies in library use. Turning this argument on its head, it could be that materials and approaches have failed to exploit the potential of the LL because the most appropriate uses of the LL in terms of the practice criteria have yet to be fully investigated, or have not yet been fully developed.[12] We have already stated the limitations of the LL in Chapter Two, and also our view that a decision to use the LL for specific training and practice should take account of such limitations and attempt, through the nature of the techniques and materials used, to minimise the limitations. We have seen that the LL can be fully exploited for role-playing activities, active listening and interview situations, given adequate skill in the teacher and good training in LL use in the students. However, it is felt that in the present climate of language learning, and especially at the lower levels of language ability (that is, from beginner to intermediate), the LL is possibly best exploited for training in those areas of spoken language where accurate perception and production of the actual message (as opposed to the overall meaning or argument) are important factors, where the absence of a critical or authentic, meaningful response is of little importance, and where the student can make use of the self-critical and self-pacing facilities with minimum intervention from the teacher.

3.4.2 The LL as a training tool for the development of listening skills

Recently, there has been interest shown in the literature for the use of authentic materials in listening practice (e.g. Brown, 1977, 1978;

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12. It should be stated here that I feel that the course "English Fast" (Wakeman, 1970) is a very well conceived and developed LL course.

Underwood, 1979; Underwood & Barr, 1980). This approach to listening practice seems to fit in well with an open-ended library system for the LL or with a home-study cassette system, but not necessarily with the type of intensive training that the LL in class mode is associated with, or with training in specific aspects of production and perception skills. We do not intend to argue the case for discrete or integrated skills for training or practice in listening, but it is the view held here that, in the LL context of training in listening skills, it would seem that the emphasis on the contextual and semantic aspects of the spoken discourse in authentic materials inevitably limits the potential or even the necessity for full exploitation of the LL facilities, while there are aspects of the complex listening process, the development of which in learners may be greatly aided by the facilities offered by the LL. Although, as was stated in Chapter Two, 2.4.4.1, there has been little applied research in this field, the role of stress and rhythm acting on and with structure and lexis, as aspects of the speaking and listening ability, would appear to be such an area of language development in which the LL may offer facilities well-suited to the training tasks.

In the following two chapters we shall concentrate on speech perception and on the role of stress and rhythm in the accurate decoding of spoken discourse. Firstly, we shall review the literature and research in these areas, and secondly, we shall report on a series of experiments concerned with investigating connections between understanding connected spoken English text and discourse, and stress perception. This work leads, in turn, to the development of training materials for use in the LL, in Chapters Seven and Eight.

QUESTIONNAIRE 1. RESULTS

Annex to Chapter Three : Results of Questionnaires

1.1 Attitude to the LL as a Class Teaching Aid

N = 16	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
LL sessions enjoyable	2	3	11	-	-
LL sessions useful	2	13	1	-	-
LL helps improve pron.	4	12	-	-	-
LL helps gr. accuracy	2	13	-	1	-
LL helps gen. fluency	1	9	2	4	-
Students work well in LL	1	4	7	2	-
LL makes concentration easy	2	3	8	3	-
Privacy is positive factor	7	6	3	-	-
My students like LL	1	8	3	2	-

1.2 The LL is Useful: Mainly for beginner : 2
Mainly for advanced : 0
At all levels : 11

I should like to spend per week in the LL : 30 - 40% : 1
20% :15

I actually spend per week in the LL : 20% :16

I should like LL sessions: Every day twice : 0
Every day once : 4
Once a week : 2
More than once a week : 9

I should like each session to be: 10 mins : 0
Less than 30 mins : 2
30 - 45 mins : 9
Flexible : 5

Questionnaire 1 Results (cont'd)

1.3 Please grade the following exercises according to level for value in LL practice: N = 14

		very useful	quite useful	little use	harmful
Repetition :	beginner	6	3	2	
	elementary	7	1	4	
	intermediate	2	4	5	
	high inter.	1	2	10	
	advanced	0	2	9	1
Structure Drills :	beginner	4	6	2	
	elementary	4	5	3	
	intermediate	2	6	3	
	high inter.	1	5	5	
	advanced	0	4	4	1
Listening Passages :	beginner	1	3	6	1
	elementary	1	3	7	
	intermediate	2	2	7	
	high inter.	2	2	7	
	advanced	2	3	7	
Listening plus Questions:					
	beginner	5	4	1	1
	elementary	6	3	1	
	intermediate	6	3	1	
	high inter.	7	2	1	
	advanced	8	2	1	

Questionnaire 2.1 Results

2.1 Language Laboratory features : theoretical

Please grade each of the following features in a LL according to whether you think they are :

5 : ESSENTIAL
4 : HIGHLY DESIRABLE
3 : IMPORTANT, but the LL can perform efficiently without it
2 : USEFUL, in that it would add to the value of the LL but not at all important for its success or failure
1 : UNIMPORTANT
0 : IRRELEVANT/WASTEFUL/HARMFUL

	ESS.	H.DES.	IMPT.	USEFUL	UNIMPT.	IRREL.	
Each student should be able to answer all questions and work all the time	3	12	2	1	1	3	N=22
Each student should be responsible for his own performance	7	11	1	3	1	0	N=23
Each student should be able to carry away a record of his own performance	0	4	3	2	12	1	N=22
Each LL session should have a variety of voices	1	9	4	6	3	0	N=23
Student recording should be separate from the master	7	5	1	1	5	0	N=19
Student should be able to listen critically to his own voice	17	4	1	0	2	0	N=24
Each student should be able to check taped information and have access to cross-referenced material	2	6	3	8	1	0	N=20
Each student should be able to work at his own pace	12	8	2	1	0	0	N=23
Each student should have a copy of the master readily available for review	11	4	3	4	1	0	N=23
LL should be able to provide an untiring and authentic model	13	6	2	0	2	0	N=23
Teacher should be able to deal with student problems individually	18	4	1	0	0	0	N=23
Each student should have the privacy of a booth	14	7	2	0	0	1	N=24
The LL should be movable	0	1	2	7	12	1	N=23
The LL should be technically simple to operate	15	3	3	2	0	0	N=23
The teacher should play a mediating role between the LL and student	7	6	3	2	2	1	N=21
LL should have the capacity for a variety of programmes & activities	13	7	2	1	0	0	N=23

Questionnaire 2.2 Results (cont'd)

2.2 Language Laboratory features: actual

Please grade the following "advantages" of the LL as a class aid (over single T.R.)

	Major	Minor	Negligible	Not an adv.	
1. Each student can answer all the questions and work all the time	19	1	1	2	N=23
2. Each student is responsible for his own performance	18	3	2		N=23
3. The variety of voices makes the LL session more interesting	8	7	3	5	N=23
4. The student can listen critically to his own voice	21	1	1		N=23
5. The student can work at his own pace	23				N=23
6. The LL can provide an untiring and authentic model	9	4	6	4	N=23
7. The teach can deal with each student's problems individually	19	2	2		N=23
8. Students are not afraid to speak in the privacy of LL booth	16	4	2		N=22
9. It is easier for a student to concentrate in the LL	9	7	2	2	N=21
10. A variety of programmes and activities is possible	14	3	1	4	N=22

Annex (cont'd)

Questionnaire 2.1 : Results N=23

Language Laboratory features felt to be ESSENTIAL by 50% and over

Student should be able to listen critically to his own performance : 17
Each student should be able to work at his own pace : 12
LL should be able to provide an untiring and authentic model : 13
Teacher should be able to deal with students' problems individually : 18
Each student should have the privacy of a booth : 14
The LL should be technically simple to operate : 15
LL should have the capacity for a variety of programmes and activities : 13

LL features felt to be ESSENTIAL or HIGHLY DESIRABLE by 50% and over

Each student should be able to answer all the questions and work all the time : 15
Each student should be responsible for his own performance : 18
Student should be able to listen critically to his own performance : 21
Each student should be able to work at his own pace : 20
Each student should have a copy of the master readily available for review : 15
LL should be able to provide an untiring and authentic model : 19
Teacher should be able to deal with student problems individually : 22
Each student should have the privacy of a booth : 21
The LL should be technically simple to operate : 18
The teacher should play a mediating role between the LL and student : 13
LL should have the capacity for a variety of programmes and activities : 20

LL features felt to be UNIMPORTANT or IRRELEVANT/WASTEFUL by 50% and over

Each student should be able to carry away a record of his own performance : 13
The LL should be movable : 13

Questionnaire 2.2 : results N=23
"advantages" graded as major by 75% and over

Each student can answer all the questions and work all the time : 19
Each student is responsible for his own performance : 18
The student can listen critically to his own voice : 21
The student can work at his own pace : 23
The teacher can deal with each student's problems individually : 19

"advantages" graded as major by 50% and over

Students are not afraid to speak in the privacy of the LL booth : 16
A variety of programmes and activities is possible : 14

No clear "advantage" : 3; 6; 9.

Questionnaire 3. Results N = 22

Language Laboratory features : drawbacks

Please grade the following "drawbacks" of the LL as a class aid (c.f. single T.R.)

	Major	Minor	Negligible	No drawback inc. 'Not True
Class disruption		4	8	10
Student concentration time very limited	2	7	6	6
Low level mechanical work much of the time	4	4	8	5
Largely artificial language work	5	3	6	7
Only linear programmes possible with no cross-referencing possible	5	7	5	4
Practice limited by machine capability	5	7	5	3
Pre-recording essential for best use	3	6	5	6
Teacher must be trained to exploit LL and LL materials	7	6	4	3
No permanent record of student performance	3	5	8	5
No permanent record of master for student	3	5	8	5
Large amount of work by student unmonitored	5	7	7	2
Likelihood of over/underlearning	3	7	6	5
Taped materials control nature and content of students' responses	4	10	4	3
Student cannot check on earlier performance	4	9	5	3
A-A-C. system or repeater needed for efficient use and critical development	6	5	6	3
Problem of self-criticism and evaluation	7	6	7	1
Work in LL (time consuming)	2	2	5	6
Student controlled pace is not necessarily best	1	8	5	6
Large amount of supplementary material needed	2	6	9	4
Who decides pace ?	2	3	12	3
Student interest time limited	5	8	6	1
Student participation time limited	1	8	6	5
Teacher has very limited time per student	8	8	2	1
Teacher/student communicate via headset	0	3	7	11
Student must know use of 'T' call	1	1	7	12
Students speak 'boothspeak'	3	5	7	5
Student unable/unwilling to transfer after LL session	4	6	7	4
Claustrophobia	2	5	8	5
Student's performance reactive not interactive	4	11	4	1
Need for wide variety of activity	5	6	2	6
Students must be 'happy' using LL controls and performing drills and exercises	6	9	3	3
Material must be available in quantity	7	7	3	5
Hardware must be suitable	6	6	2	6
LL material and work must be integrated	6	2	3	9

Other drawbacks:

Questionnaire 3. Results N = 22

Drawbacks felt to be MAJOR by 25% and over

Teacher must be trained to exploit LL and LL materials : 7
A-A-C. system or repeater needed for efficient use and critical development : 6
Problem of self-criticism and self-evaluation : 7
Teacher has very little time per student : 8
Student must be 'happy' using LL controls and performing drills and exercises : 6
Material must be available in quantity : 7
Hardware must be suitable : 6
LL material and work must be integrated : 6

Drawbacks felt to be MAJOR or MINOR by 50% and over

Only linear programmes possible with no cross-referencing possible : 12
Practice limited by machine capability : 12
Teacher must be trained to exploit LL and LL materials : 13
Large amount of work by student unmonitored : 12
Taped materials control nature and content of students' responses : 14
Students cannot check on earlier performance : 13
Problem of self-criticism and self-evaluation : 13
Student interest time limited : 13
Teacher has limited time per student : 16
Students' performance reactive not interactive : 15
Students must be 'happy' using LL controls and performing drills and exercises : 15
Material must be available in quantity : 14
Hardware must be suitable : 12

Factors felt to be NEGLIGIBLE as drawbacks or NOT A DRAWBACK (including NOT TRUE) by 50% and over

Class disruption : 18
Student concentration time very limited : 12
Low level mechanical work much of the time : 13
Largely artificial language work : 13
No permanent record of student performance : 13
No permanent record of master for student : 13
Large amount of supplementary material needed : 13
Who decides pace : 15
Teacher/student communicate via headset : 18
Students speak boothspeak : 12
LL material and work must be integrated : 12

Questionnaire 4. Results

Language Laboratory : use

Please grade the following features of LL use as a class aid according to whether you think they are:

5 : ESSENTIAL
4 : VERY IMPORTANT, but not essential
3 : IMPORTANT, but the LL session would not be wasted if it were absent
2 : USEFUL, that is, adding to the value of the session
1 : UNIMPORTANT
0 : NEGATIVE RESPONSE, may be wasteful or even harmful

N = 18	5	4	3	2	1	0
The teacher must like using the LL	5	5	4	3	1	0
The teacher must be 'happy' using the LL	7	5	2	4	0	0
The teacher must be experienced in LL use in order to exploit it successfully	7	6	3	2	0	0
Start up time must be short	6	6	2	4	0	0
All materials should be indexed	7	5	4	2	0	0
LL work should be co-ordinated with class work	8	5	4	1	0	0
LL work should be purpose designed	7	5	3	3	0	0
All LL work should be pre-recorded	0	2	9	3	3	0
There should be a variety of materials in any LL session	5	4	5	2	2	0
There should be a variety of activities in any LL session	3	7	4	2	2	0
There should be a choice of materials in any LL session	0	2	6	5	4	1
There should be a choice of activities in any LL session	0	2	5	6	3	2
There should be a variety of pace in any LL session	5	8	4	1	0	0
Recorded materials should always be integrated with other materials	3	7	3	4	1	0
Teacher should monitor students throughout session	5	8	3	2	0	0
Teacher should spend most time analysing and correcting students' errors	4	5	2	2	1	3
Teacher should give short correction rather than lengthy explanation	7	6	1	1	2	0
Teacher should make notes of students' errors	2	3	3	7	2	1
All students should be clear as to pedagogical function and limitations of LL	3	3	6	3	2	1
All students should be 'happy' mechanically	11	1	2	4	0	0
All students should be 'happy' manipulatively (i.e. they should be able to perform drills and understand phases of drills)	11	2	2	3	0	0
All students should be clear as to objectives of each session	8	3	5	1	1	0
All students should be able to vary pace	6	5	4	2	1	0
All students should be 'happy' with pre-set pace	3	5	1	4	1	1
All students should be able to self-correct/eval.	11	3	2	0	2	0
All S. should know when and how to use 'T' call	13	4	0	1	0	0
Direct follow-up of LL practice should take place immediately after or as soon as possible	2	3	6	3	2	1
There should be a choice of pace in any LL session	4	3	5	1	5	0

Other essential features:

important features:

Questionnaire 4. Results N = 18

Categories considered ESSENTIAL or VERY IMPORTANT by 50% and over:

Teacher use of LL

Teacher must like using the LL : 10
Teacher must be 'happy' using LL : 12
Teacher must be experienced in LL use : 13
Start up time must be short : 12
All material should be indexed : 12
LL work should be co-ordinated with class work : 13
LL work should be purpose designed : 12
There should be a variety of materials in any LL session : 9
There should be a variety of activities in any LL session : 10
There should be a variety of pace in any LL session : 13
Recorded materials should always be integrated with other materials : 10
Teacher should monitor students throughout session : 13
Teacher should spend most time analysing and correcting students' errors : 9
Teacher should give short correction rather than lengthy explanation : 13

Student use of LL

All students must be 'happy' mechanically : 12
All students must be 'happy' manipulatively : 13
All students should be clear as to the objectives of each session : 11
All students should be able to vary pace : 11
All students should be able to self-correct/evaluate : 14
All students should know when and how to use 'T' call : 17

Categories considered IMPORTANT or USEFUL by 50% and over:

Teacher use of LL

There should be a choice of materials in any LL session : 11
There should be a choice of activities in any LL session : 11
All LL work should be pre-recorded : 12
Teacher should make notes of students errors : 10
Direct follow-up of LL practice should take place immediately after or as soon as possible : 9

Student use of LL

All students should be clear as to pedagogical function and limitations of LL : 9

Categories with broad spread

There should be a choice of pace in any LL session : 4; 3; 5; 1; 5; 0.

TEACHER :		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Questionnaire 5/6																					
IDEAL LANGUAGE TEACHING MATERIALS : RESULTS																					
LEVEL:	BEGINNERS	0	+9	+9	+12	-26	+8	-13	+3	-7	+10	+8	+14	-25	-4	-4	-18	+15	-16		
	ELEMENTARY	-15		+6	+14	-27	+5	-15		-7	+10	+3	+2	-25	-4	-5	-16	+6			
	INTERMEDIATE	-19		-7	-13	-27	+3	-24		-18	-4	-6	-16	-25	-13	-6	-17	-21			
	HIGH INTERMEDIATE	-20		-17	-10	-33	-12	-24		-19	-14	-16	-16	-25	-20	-14	-23	-32			
	ADVANCED	-27	-12	-20	-12	-33	-15	-26		-19	-17	-16	-17	-25	-30	-19	-27	-33	-16		
Questionnaire 7/8																					
CURRENT LL MATERIALS : RESULTS																					
LEVEL:	GENERAL	+15		+10	+14	-2	-10	-2			+10	+18	+16	+20	+15	+14					
	BEGINNERS	+29		+14	+18	+15	+7	+8			+16	+25	+27	+27	+25	+14					
	ELEMENTARY	+27		+7	+17	-5	+3	+8			+16	+24	+27	+30	+23	+14					
	INTERMEDIATE	+7		-11	+5	-13	+10	-1			-10	+19	+4	+20	+19	+14					
	HIGH INTERMEDIATE	+5		-18	-3	-19	-14	-21			-26	+19	+4	+20	+6	+14		+22			
	ADVANCED	-6		-27	-6	-28	-12	-24			-26	+17	-9	+1	-19	+14		+22			

Questionnaire 7/8 : Current LL materials (cont'd) RESULTS

1. Materials actually used by teachers replying to questionnaire.
English Fast (books 1 - 4); Access to English (Starting Out and Getting On); Kernel Lessons Intermediate and Plus; British Council Language Units; Arels Oral Examination scripts and tapes; Varieties of Spoken English; Success with English - The Penguin Course; Active Intonation; Drills and Tests in English Sounds; English for Business - the Bellcrest File; A Modern Course in Business English; State Your Case; Colloquial English; Materials recorded direct from radio e.g. news; First Things First.

Comments

"most drills have a breakthrough point, either the student 'gets' the exercise or he doesn't."

2. Ideal Materials should be:
adaptable/flexible; realistic/meaningful; enjoyable; variety of approach; have music for atmosphere; visual stimuli; back-up with cassette library; should be discrete and integrated at the same time - with clear aim and purpose; not meaningless - natural English utterances; variety of what students think they are doing with the materials.

Chapter Four. The perception of stress and rhythm as a factor in the understanding of connected speech : a review of the research and literature.

Chapter Four. The perception of stress and rhythm as a factor in the understanding of connected speech : a review of the research and literature.

4.1 Introduction

In Chapter Two and Chapter Three we were concerned with describing and defining the role of the LL as a class aid, and with assessing its use in practice by teachers and students in terms of practice criteria linked to exploitation of specific facilities. It was found that in the majority of the classes observed the LL was not fully exploited as a training and practice tool. Rather than reduce the status of the LL to that of a supplementary aid, it was suggested that there are aspects of the complex listening process, the development of which in learners may be greatly aided by the use of the LL. One such area is stress and rhythm, which is acknowledged as playing an important role in both production and perception of continuous speech, but which is still only hazily understood at present.

In the present chapter, we shall review research and literature concerned with the auditory perception of speech, and in particular with phonological, developmental and perceptual aspects of stress and rhythm, and the role stress plays in the successful decoding and encoding of spoken text and discourse. From this review, we shall try to ascertain the degree of theoretical support for considering that accurate perception of stress and rhythm is an important factor in listening comprehension ability. Following on from this, in Chapter Five, we shall report experiments carried out to provide empirical support for the role of stress and rhythm as perceptual factors in the understanding of connected speech.

4.2 The auditory perception of speech and models of speech perception.

4.2.1 Auditory perception of speech is obviously an extremely complex process in which different senses and different factors play major or minor

parts depending on internal or external conditions of readiness, acuity, noise, intelligence and language ability. The variety of often complementary theories and models of speech perception and speech understanding indicates the broad areas which remain thus far unclear. As Studdert-Kennedy in the most recent review of research in speech perception puts it:

> "Theory has dropped into the background (or perhaps the back room) and no one seems eager to argue the merits of analysis-by-synthesis of the 'motor theory' any more. Certainly, theory continues to guide research, but a refreshing atheoretical breeze has been blowing in from speech understanding research and from developmental psychology." (1980 : 45)

In second language learning, the position is well-expressed by Brown:

> "Unfortunately, we know very little about what are the signals that the native speaker relies on in unravelling a message. Most of the experimental work done on the perception of speech has been done on segments or stress patterns in isolated words." (1977 : 9)

Speech perception models and theories are relevant to the present work only in so far as they may offer partial explanations of the listening process, and, more especially, insights into why the adult learner may fail to develop a listening ability when in relatively secure command of the rules of the language. It is, therefore, not proposed that we should present a full and detailed account of all theories of speech perception and their relative strengths and inadequacies, but only those aspects of recent theories and models which could be considered relevant to a developmental model of listening for adult second language learners.

Speech perception models described in the literature can be divided into 'passive' speech processing models and 'active' speech processing models (using the term given by McKay (1956) to describe theories of perception and adopted by Sanders (1977). Passive speech processing models (other

than simple template matching models[1]) work on principles either of filtering distinctive features via the articulatory resonator system (Fant 1967), or of detecting and extracting distinctive acoustic features from the speech stimulus, which are perceived as phonemes and morphemes by a process of mapping and conversion into equivalent articulatory features (Abbs & Sussman, 1971 ; Hemdal & Hughes, 1967). As Sanders (1977), in probably the most thorough recent account of auditory perception and different theories, states regarding such passive models:

> ".... the process of auditory perception involves the direct structuring of active neural patterns by the pattern information content (distinctive features) of the acoustic stimulus." (1977 : 114)

Although one might imagine that such models would have a built-in weakness in being dependent upon detectors of particular speech sounds, most models have a tuning or 'normalizing' (Hemdal & Hughes op.cit.) device built-in, which provides for tolerance of variation between different speakers. As yet, however, no passive model has been supported by empirical evidence beyond the phoneme stage (Warren et.al., 1969, cited in Abbs & Sussman, 1971), and with regard to the understanding of connected speech, to quote Sanders:

> "The link between the ability to discriminate small units of speech and the ability to comprehend is at best tenuous." (1977 : 194)

The active decoding theories such as the motor theory (Liberman, Cooper, Shankweiler and Studdert-Kennedy,1967; Liberman, Cooper, Harris, MacNeilage and Studdert-Kennedy,1967b) and analysis-by-synthesis (Stevens, 1960; Halle & Stevens,1962; Stevens & Halle,1967) appear to offer more adequate and powerful explanations of the speech perception process and consequent problems for the learner. Passive models based on the identification

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1. Sanders refers to such template theories, which are too inflexible to respond to the demands of variation in speech perception, as "a type of pattern bingo". (1977 : 86)

of the phoneme are rejected by Liberman et.al. (1967), not only on the grounds that phonemes could not be processed at normal conversation rates with any degree of intelligibility, but more important for the present work, because the identity of phoneme components is lost in the continuous speech signal. According to motor theorists, speech perception must involve the use of a special code allowing perception of sounds to be mediated by the articulatory process of speech production. Again, must of the research on active models has also been at phoneme level, and while the system proposed is intended to work at different levels, including semantic, as a parallel process, its claims for providing evidence for a speech processing system must be extremely limited for this work. Motor theorists propose a matching process in which the grammatical structure of the language is used as a matching device between the acoustic signal and the phonetic system, and between the phonetic system and the intellect working on a system of concepts. Given that the ear cannot process phonemes in serial form as they are received, motor theorists further propose that some form of parallel processing of the acoustic information must take place. Most important, it is proposed that there is a direct relationship between the way in which we encode language for production and the corresponding way we decode the perceived signal. To quote Sanders once again:

> "In some way we perceive speech by reference to the manner in which the speech was articulates." (1977 : 121), and he continues,

quoting from Cooper (1972):

> "Thus the act of perceiving someone else's speech is closely related to the process of speaking and listening to one's own speech, with neural activity in the speech mechanism triggered by the incoming auditory data at the level of linguistic features." (1977 : 122)

The analysis-by-synthesis model also relies on a system of active matching and parallel processing. The model proposed by Stevens & Halle (1967) postulates that:

> "..... the perception of speech involves the internal synthesis of patterns according to certain rules, and a matching of these internally generated patterns against the pattern under analysis. We suggested, moreover, that, the generative rules utilized in the perception of speech were in large measure identical to those utilized in speech production, and that fundamental to both processes was an abstract representation of the speech event." (1967 : 88)

That is to say, the incoming acoustic signal is processed in terms of a knowledge of the rules governing its production at an abstract level and without direct reference to motor mechanisms in the motor theory. Speech perception in this model is related to but at the same time separate from the production mechanism, with knowledge of common rules forming a bridge, as it were, and as with the motor theory, the incoming acoustic signal or speech pattern is analysed at different levels, but in this case a hypothetical auditory pattern is produced rather than an articulatory one. The auditory pattern is matched - or an attempted matching is made - from lower to higher processing levels. Mismatching results in the generation of new hypotheses but it appears that because of the high degree of situational, contextual and linguistic constraints operating on the speaker and which are therefore usually predictable by the listener, the "criteria employed in the matching operation may not always be very stringent". (Halle & Stevens,1967 p. 100, also quoted in Sanders (op.cit., p. 127).

The inadequacy and incompleteness of all proposed models of auditory perception is indicated by Sanders (op.cit.) in his concluding section of theories of speech perception pp. 127 - 129, when numerous writers and researchers in this field are quoted as modifying strong active or passive claims in favour of a mixed compromise, and as Sanders concludes:

> "The solution to the problem of how speech is perceived probably lies not in the answer to the question 'Does it involve active or passive processing?', but rather in evidence to indicate the relative contribution of these two modes of function, the variables

which govern that contribution, and the levels of processing at which it occurs." (p. 129)

The active and passive models discussed above were attempts to simplify and limit the speech perception process in order to build speech recognition and understanding models which would be viable for computer use. As yet, however, no computer-based speech understanding system has been capable of working in real time beyond the word/short utterance stage, and then with high possibility of error unless considerable constraints are imposed on the speaker (Personal communication from Department of Artificial Intelligence, University of Edinburgh, and Bolt, Beranek, Newman Reports (BBN) published in ASIB, Summer School, June, 1977).

With regard to the question of how human perception of spoken discourse is processed rapidly and efficiently in real time, Sanders himself proposes a highly complex integrative model of pattern processing, treating the process of speech perception as a "highly dynamic one, dependent upon an auditory system involved in establishing relationships between the internally generated expectancies and the received acoustic signals" (op. cit. : 177). A development of analysis-by-synthesis has also been proposed by Kirakowski (1978) for human speech processing. He argues, with empirical evidence to support him, that any model of speech perception without prosodic information included is self-contradictory and self-limited.

While theories of perception may be inadequate as explanatory models for human speech perception, they offer insights into low level strategies, which can be incorporated into larger pattern processing models on an integrative or a developmental basis, and from an applied linguistics and second language learning position, they also suggest the sources of certain problems of developing listening comprehension ability in adult learners. All theories described above work on the principle of a set of committed cells, articulators or synthesizers being ready to accept and analyse an

incoming message, the perceived form of which will at least be familiar, even if the content or concepts are not; the perceptual skills invoked to activate each process are supported where possible by limited experimental data, which, in some cases, can be said to be identifiable with low level perceptual skills found in the language teaching syllabus. Thus, filter theories have been used to explain problems of memory and selective attention; neurologically based feature detector models (e.g. Abbs & Sussman op.cit.) could be reasonable explanations of the evidence offered by experiments on the identification of nonsense words and speech/non-speech sounds (Studdert-Kennedy and Shankweiler, 1970), and sequencing and temporal processing (Warren, Obusek, Farmer & Warren, 1969), and find echoes in simple sound identification and discrimination problems and in recognising correct word order. The motor theory has been invoked to account for data also dealing with categorical distinctions of phonemes (Liberman et.al., 1967), and with the phenomenon of sub-vocal rehearsal used by first and second language learners when reading and listening intently or with uncertainty. The analysis-by-synthesis model, while intuitively satisfying in many respects, has been supported thus far largely by phonological evidence of masking noise and phoneme deletion (Warren & Sherman, 1974). One may of course feel that analysis-by-synthesis corresponds to the phenomenon of sentence completion when listening to hesitant speakers or when filling in gaps in the presence of noise.

In real-time application, the reference either indirectly or directly to the production mechanism in active theories of speech perception may be felt to be a weakness, and in learning one would expect that active reference to the production mechanism by sub-vocal rehearsal, or abstract reference by constant following of the message would restrict the power of listening strategies by limiting the listener to the language of the message rather than allowing the listener to concentrate on the whole message or argument[2]. For learners at least, there appears to be a paradox in this as active

2. Although it must be said that parallel processing in these models

knowledge of both the language of the message and of its manner of production have been stressed as important factors in the accurate decoding of connected speech by phoneticians such as Jones (1962), Abercrombie (1967) and Lehiste (1970). We shall develop this argument later (section 4.4.1) when discussing the role of stress and rhythm in connected speech. Sanders again (op.cit.) puts the problem succinctly and in doing so indicates indirectly the gap between adult learners of English and adult native speakers with regard to listening comprehension, which is only bridged at present by informed guess-work such as that described by Brown (1977)[3]. To quote Sanders:

> "It is impossible to appreciate the amazing efficiency with which the system performs such a highly complex activity. We take for granted our skill in processing language at high speed, although for the most part we are unaware how we do so". (1977 : 177)

4.2.2 For linguists and psycholinguists the problem of auditory perception centres around rules and mechanisms or processes. Sutherland (1966) and others such as Thorne (1966, 1968) have described the role of the linguist as being to describe and define the rules, that is, the grammar of the language, while the role of the psycholinguist is to discover and describe the mechanisms which enable the speaker/hearer to produce (or perceive correctly) the rule-governed language. However, this neat division has been complicated and blurred by suggestions that there is an essential difference between behaviour governed by rules and behaviour governed by conditioned habits (for example, in Miller, 1968). Miller (ibid. : Chapter Five) suggests that the originality of combinations and the combinatorial productivity of language rules out conditioning, that is, we have learned rules not strings.

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3. Brown (1977) herself provides me with the term 'guesswork' in the following: "Since the situation is urgent .... I am going to present in this book some of my guesses about what it is the native speaker uses to find his way about the speech signal". (p. 10)

It is felt, however, that the two need not be mutually exclusive, given that invariable strings, such as formulaic expressions and holophrases, are a feature of spoken discourse in English, and that shaped processes, the essence of conditioned behaviour, not only operate in the presence of rules, but can also be adjusted and altered to produce results which conform to patterns permitted by the rules.[4] Miller (ibid. : 88) and Lenneberg (1967 : 308) both admit the need to differentiate between 'knowing' rules and one's performance as user, but the point is not clearly defined. In a similar way, Sanders, in the following example, also finds difficulty in making a distinction between rules, use of rules, and processes, and between the different forms of knowledge and behaviour required by each:

> "Competence in restructuring the total pattern of the message depends upon the listener's knowledge of the rules which govern the preparation of the message." (op.cit. : 153)

This could be taken to imply that knowledge of the rules of the language does lead, or is in some way equivalent, to production and reception, which is manifestly not true in language learning, just as it is not true in first language acquisition. However, Sanders continues:

> "It is the language rules operating on the speaker and listener alike, which govern how we receive the coded information from the acoustic signal." (1977 : 153)

But rules do not operate directly on speakers and listeners. As Fry (1970) suggests, rules can only operate to constrain and shape the processes of speakers and listeners to limit the nature of the message sent by the speaker and the interpretation put on it by the listener so that it

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4. An analogy which may make the point clearer is the game of tennis, where rules and conditioned processes co-exist happily together.

falls within the rules. Language rules do not govern directly how we recover messages in connected speech, only the interpretation that we put on them.

The confusion of competence, mechanisms and performance is shown by the desire by some investigators to demonstrate the psychological reality of linguistic segments in the deep structure, thereby also demonstrating the validity of the transformational-generative model as an explanatory model of human perception of language. The experiments using 'clicks' by Fodor & Bever (1965) and Garrett, Bever & Fodor (1966) have frequently been used as support for the psychological reality of deep structure. However, Larsen (1971) found in replicating the above cited experiments that due to insufficient precision of the original postulates, the results obtained were uninterpretable, while Toppino (1974) in re-examining the Fodor & Bever (op. cit.) and Garrett, Bever & Fodor (op.cit.) findings suggests that an explanation in terms of deep structure segmentation based on underlying propositions is quite unjustified given adequate surface structure explanations. Thorne (1966) and Sutherland (1966) have both attacked Garrett, Fodor and Bever for equating linguistic competence with psycholinguistic mechanisms; while one may be able to give a systematic account of rules and grammar, one may not be able to specify the mechanisms that the rules operate on, except at different levels of abstraction.

A more recent criticism of such 'click' experiments was given by Levelt and Flores d'Arcais:

> "One must be very alert .... to possible traps. An important point here is the opportunity of not confusing situations which call upon judgements on a certain speech event, with 'real' perceptual situations. The interpretation of certain 'click' experiments is an example of this confusion, where effects, which can clearly be assigned to response bias, are interpreted as perceptual effects."
>
> (1975 : 349 - 50)

Fortunately the transformational-generative position has been stated clearly by Chomsky in his Appendix to Lenneberg (1967):

> "A perceptual model, PM, ... might be described as .... a device that accepts a signal as input (along with much else) and assigns various grammatical representations as output ..... A central problem for psycholinguists is to discover the characteristics of a system PM of this sort ..... The PM uses much more information and operates under constraints of time, memory and organization of perceptual strategies that are not matters of grammar ..... Although we may describe the grammar G as a system of processes and rules that apply in a certain order to relate sound to meaning, we are still not entitled to take this as a description of the successive acts of a performance model such as PM - in fact it would be quite absurd to do so." (1967 : 398 - 99)

To return to the mechanisms or processes of auditory perception and their relationship with rules, which can be ignored by linguists, but which is important to second language learning, Sanders makes a key contribution to the understanding of auditory perception as a complex, active and dynamic process when he observes:

> "We perceive according to the manner in which we have prepared our perceptual system to approach the task. We perceive not the signal, but how we have perceived it." (op.cit. : 153)

In terms of second language learning, this suggests that a major difficulty for learners in developing an ability in listening comprehension is that they are actually perceiving in the wrong way for the language that is being learnt. That is, there is a problem of mismatching at the interface since processes may be being used which have been shaped for first language use, in particular those concerned with stress and intonation (c.f. Lieberman, 1967) on the imposition of internally generated stress and intonation contours).[5]

The problem of accurate auditory perception is further complicated by the real-time and memory problems already mentioned above and by Chomsky (see above) when discussing models of perception. How does one store and process perceived discourse at speed given the constant arrival of information ? Miller's (1962) 'chunking' notion was one plausible explanation offered for the way in which we are able to reduce the decision-making rate in perception to manageable proportions. Broadbent (1958), Ladefoged (1959) and Miller (1962) as well as others have shown the importance of short-term memory and information capacity in processing sentences whose existence is rapidly fading away. Miller (1962) and Mistler-Lackman (1972) and others have demonstrated experimentally the connection between syntactic structure and length of time needed for processing, while Rommetveit and his colleagues (1967, 1971) and Wold (1978) have undertaken more contextualised studies which show that task demands, and ratio and position of given/new information are all central to the level of understanding achieved, and that speed of processing written discourse involves the close correspondence of word order and message structure. While much of this work is clearly relevant to second language learning in general terms, we shall consider later (4.4.3) only those aspects of real time storage and processing of given and new information and of specific syntactic structures which have been shown to be directly linked to the production and perception of stress and rhythm.

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5. While the author would not claim expert or profound knowledge on the subject, considerable insight into the problem of perceptual mismatching has been gained from work on "adaptation level" (A-L) theory. The central concern of A-L theory is to understand the appearances of stimuli (Bevan and Gaylord, 1977 : 364) based on the general principle of perceptual relativity. For a fuller account of A-L theory, and for illustrative examples of A-L taking place, the reader is referred to the chapter by the above cited authors.

4.2.3 With regard to second language learning, the notion of active pattern recognition with parallel processes operating at different linguistic levels is obviously attractive as a learning model, and would justify a training approach based on the different outputs (e.g. abstract articulatory representation of perceived message, or internally generated synthesis of perceived message) of the various theories of perception discussed earlier. This approach would build up towards a complex, integrative system such as that proposed by Sanders (1977). We would also consider it essential to include prosodic perception, as proposed by Kirakowski (op.cit. : 204), in such a model, and would make a distinction between the skills concerned with rule acquisition which are not constrained by real time factors, and more 'dynamic' skills, such as perceptual matching, in which real time constraints play an important part. As our model of developing listening comprehension ability, we shall, therefore, take the view that there is an active and dynamic matching process capable of operating at different levels in parallel. Since it is a developmental model, we do not need to consider that the language input is being processed at all levels in parallel. We would prefer to argue that this is far from being the case in the low level learner, and that in real time, the dynamic matching process can be severely restricted by poorly developed perceptual functions at specific levels. The matching processes of learners and native speakers will be tested and compared in the series of experiments reported in Chapter Five, following.

4.3 The development of speech perception

4.3.1 Since we are concerned with problems in the development of listening ability in adult second language learners, the question must be asked whether studies in first language acquisition are relevant to second language learning. The choice of terms is significant, reflecting the different strategies that first language and adult second language learners bring to the language

learning task. Superficially they appear to share certain approaches: both are concerned with the acquisition of correct rules and with language production and reception developing within the framework of rules over time; heuristics form an important element in first and second language learning; both learners must use memory, attention, readiness, previously acquired knowledge and prediction to develop their language ability. By definition the second language learner is not in the same position as the first language learner. Whether one takes a conditioning viewpoint or a rule-governed cognitive viewpoint on language learning (see Chapter Two), the second language learner, especially the adult, is far from being a tabula rasa for whom the language processes can be shaped in order that he may perform effectively within a set of linguistic rules.[6] The second language learner already possesses at least one set of linguistic and socio-linguistic rules, plus the psycho-linguistic processes or mechanisms to produce the phonetics, phonology, syntax and semantics appropriate to the rules, that is, to fit a particular language. Perhaps more important than this is the fact that the adult second language learner will almost certainly have lost the flexibility in physiological terms for second language learning, and the strategies for its acquisition (Studdert-Kennedy, 1975).

With regard to the development of listening comprehension as a component skill in language proficiency, a limited body of research in second language learning has focussed on the ordering of skills in the teaching syllabus. Some teachers and researchers (for example, Postovsky, 1970; Nord, 1980) have proposed that delaying oral practice and concentrating solely on developing the learners' listening ability can have beneficial results, not only for comprehension, but even, later, for speaking the language. In the course reported by Postovsky (op.cit.) speaking was delayed for 180 hours and then

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6. To continue the analogy of note 5. above, the adult who already knows how to play squash must adapt (with difficulty in many cases) to tennis, while the child knows no other dynamic ball game.

only introduced gradually (from 25 minutes per 6 hour day building up to 90 minutes per 6 hour day). Unfortunately, the basis for comparison with this method was the audio-lingual approach, the effectiveness of which, as a complete method, has been under attack for some years (c.f. Chapter Two of this work, and especially the research conducted by Savignon (1972) reported in Chapter Two). Other methods, such as those described by Asher et al. (1974) and Gary (1978) which concentrate on listening comprehension in early stages of learning through obedience to commands appear to be a simple return to Direct Method principles without the spoken interaction or response. In much the same way, conclusions on the order of acquisition of language skills by children are far from firm. The findings of the now classic experiment of Fraser, Bellugi & Brown (1963) that the order of acquisition of language by three-year-old children was imitation, comprehension then production, or that imitation was more advanced than comprehension, which in turn was more advanced then production, have been frequently questioned. Fernald's (1972) re-analysis and replication of the study showed no significant difference between comprehension and production tasks. Nurss & Day (1971), while broadly supporting the results of the original experiment, demonstrated the great differences in using the original test with children of different economic backgrounds and from different areas. The conclusions reached by Clark, Hutcheson & Van Buren (1974) suggest that children's comprehension of language is over-estimated, being bound up with gestures, facial expression and chance, and that production is possibly the central mechanism of language change, rather than a process which remains constantly inferior to comprehension:

> "The child's capacity to follow another person's speech will depend on the extent to which this speech strains his current capacities. The child can only imitate more active forms and assimilate them if he can construe the adult speech in terms of his current system." (p.52)

There are obvious echoes of the active theories of speech perception described in the preceding section in this conclusion, and on a broader level

that the recognition of patterns and any processes which might be taking place are restricted by the articulatory, phonological, syntactic and semantic knowledge that the child can muster at any specific time. As with second language learners, in child language acquisition studies such as those described above, the developing stages of the child and the changing relationship between comprehension and production make such tests difficult to interpret, and Clark et al. (op.cit.) are prepared to admit that the difference in findings could be simply due to the difference in age between their child and the children of the Fraser et al. study. As others such as Bloom (1974) have noted, the problem of test behaviour compared to real-life behaviour is particularly great in children[7]. What appears certain (Smith, 1973; Ingram, 1974) is that production and comprehension are closely linked, though the question remains as to whether this closeness means that they are parts of the same process, or whether the two processes are separate, though complementary parts of a larger dynamic process, exemplified in the models of perception described earlier in this chapter. Furthermore, one might argue that while they are closely linked during the relatively early stages of development of language, it is entirely possible that they become less directly linked in later stages and certainly by adulthood, when, as we have already argued (section 4.2.1), any auditory perception system tied to the production system and to the actual message form would be cripplingly slow.

4.3.2 With regard to the role that stress and intonation play, and at what stage they are perceived, acquired and used, there has been little work in the field of child language acquisition studies. As Clark & Clark state:

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7. Compare below as an example of this, the work of Atkinson-King (1973) and Marwick (forthcoming).

> "Overall, intonation and stress have been largely neglected in the study of language acquisition." (1977 : 384)

and indeed what studies there have been are limited in scope and in claims. For example, evidence from changes in heartbeat rate and in thumb-sucking responses has led researchers (for example, Morse, 1972) to suggest that infants are sensitive to changes in stress and intonation. Morse (op.cit.), using 'High amplitude sucking' (HAS) responses as evidence, claimed that seven-week-old infants were able to detect the difference of rising and falling tones on one syllable [ba]. With regard to older infants, Miller and Ervin (1964) found that a two-year-old child (one of a group of five being studied) could indicate locative and possessive constructions using stress. The locative would have primary stress on the second word, as in "baby r/oom" in answer to "Where's the baby?", while the possessive would have stress on the first word, as in "/baby book" in answer to "Is that the baby's book?". Weiman (1976) found that children about two years old used stress systematically to indicate new information. Clark & Clark (op.cit. : 383) suggest that as children almost always imitate word stress correctly in words and in sentences, stress is stored as part of the mental representation of each word. However, it has been suggested by Atkinson-King (1973) that while children may perceive and imitate stress correctly, correct interpretation may take a little longer to acquire. Atkinson-King attempted to determine the period of acquisition of unemphatic stress patterns which signal differences of meaning in compounds and phrases such as "green h/ouse" vs "gr/eenhouse" and "h/otdog" vs "hot d/og" using the selection of appropriate pictures as evidence. She found that while a certain awareness of stress has been observed very early in life (for example by Morse, op.cit.), ability to interpret stress in compounds and phrases is not acquired until relatively late (up to twelve years old) in the language acquisition process. It should be added that the findings of Atkinson-King have been questioned recently by Marwick (personal

communication and forthcoming), whose own work on stress and intonation in mother-child interaction suggests that stress is interpreted correctly at a younger age (five or six years old) than that proposed by Atkinson-King. The discrepancy between the findings could (as Marwick suggests) be explained by the fact that while Marwick uses discourse analysis techniques, Atkinson-King relies on constrained and artificial materials for her experiments (c.f. Bloom, 1974, above, and note 7. to this chapter).

4.3.3 To summarize this section, we have briefly examined differing views on the development of listening comprehension in children and have observed that there appears to be a time lag for children between the ability to perceive or be aware of the suprasegmental features of stress and intonation and the ability to interpret the grammatical and semantic functions of such features. In particular, there is a perceptual mechanism which can perceive stress and intonation accurately, but which is separate from the linguistic, interpretative mechanism. The notion of the developing interdependence of stress and grammar has clear implications for second language learning, and these will be discussed further in sections 4.4 and 4.5 below and in Chapter Five, following. To quote Clark & Clark: "Stress and its use in English clearly takes years to acquire". (op.cit. : 383)

4.4 Stress and rhythm as perceptual factors in understanding connected speech

4.4.1 Abercrombie (1967 : 96) suggests that non-native speakers of a language (that is, learners in this case) are rarely able to achieve "phonetic empathy" with native speakers of that language. In other words, they are rarely able to tune in to connected speech in the second language to the extent that they can decode with that degree of rapidity, efficiency and general confidence or expectancy of understanding that they would expect in their first language. Abercrombie suggests further (ibid. : 36) that this inability to match native

speaker levels of decoding ability in all but the most gifted learners is possibly linked not only to limitations of knowledge of the grammatical rules, the lexis and general culture, but also to the problem of decoding the language in the speech wave at speed. It is, therefore, also a real-time problem, in which the stress and rhythm of the language, particularly in English, play an important part.

Following the linguistic descriptions of stress and rhythm proposed by Abercrombie (1967), and Halliday (1970), we shall take the view in this thesis that in (standard southern) British English, the spoken sentence consists of a succession of feet, and each foot contains one or more syllables, the first of which is always stressed or 'salient'. A foot may also begin with a silent beat, without the rhythm becoming disrupted or lost. We shall also consider that 'stressed' and 'unstressed' are the properties of syllables in connected speech. Word stress is related to main or sentence stress in that word stress has the potential for being 'salient' or carrying main stress when in sentences. Following Halliday (1970), we shall also take the view that sentences and utterances may be divided up into feet in several ways, depending on the rhythm of the sentence as expressed by the speaker. Furthermore, not only may the rhythm change, but also the tempo, that is, the speed at which the syllables carrying main stress may arrive. There are, therefore, two factors affecting the placement of main or sentence stress by a speaker in an utterance, apart from factors concerning information structure and content. These two factors are spacing (that is, the frequency of stressed in relation to unstressed syllables) and pacing (that is, the speed or tempo at which stressed syllables are spoken e.g. 60 per minute). In the present work it

is not intended to describe and compare the descriptions of different levels of stress proposed, for example, by Chomsky and Halle (1968), as these descriptions appear to have little physical or perceptual reality (Bolinger, 1972). It is also felt that such accounts of stress, given their largely abstract nature, would contribute little to the primary concern of stress as a perceptual phenomenon in the context of understanding spoken discourse.

In the literature it is frequently stated that stress is an elusive phenomenon in English. As, for example, Lehiste states:

> "..... there is no one-to-one correspondence between stress and any single acoustic parameter. Thus, there is no automatic way to identify stressed syllables." (1970 : 110)

Nor it seems is there any automatic way to identify how stress is produced. Experiments by Ladefoged, Draper & Whitteridge (1958) linked the production of stressed syllables to a burst of muscular activity of the internal intercostals and an increase in sub-glottal pressure, but as yet the physiological correlates of the different degrees of stress have not been fully established and recent experiments by Adams (1979) have seriously questioned the findings of Ladefoged et al. Adams suggests that the findings of the earlier experiments may have been distorted or wrongly interpreted by the use of single words instead of running speech, and her own experiments in this area, using running speech, offer little evidence to link stress with intercostal muscular activity. We are, however, primarily concerned with perceptual factors of stress rather than physiological or production factors. Fry (1970) for example describes a series of experiments using synthetic speech, which indicate that English listeners' stress judgements are cued by the relative duration of parts of the sound sequence, their relative intensity, fundamental frequency and spectrum. As Fry states, these cues interact in a very complex fashion:

> "... for example, when there is variation in fundamental frequency in the stimulus, this will cue the recognition of an intonation pattern which has an overriding influence on stress judgements." (op.cit. : 46)

Lehiste's (1970) view is that in general terms stress can best be judged in terms of an increase in respiratory effort, and that greater effort will produce higher degrees of stress, all other factors being constant. In this present work we shall further take Lehiste's definition of stress to refer to linguistically significant prominence produced by means of respiratory effort, the acoustic correlates of which are amplitude, sound pressure, power, energy and intensity, and which, in phonetic terms, are perceived as greater intensity, higher frequency, or longer duration. Recent experiments by Adams (op.cit.) suggest that of the three phonetic correlates, duration is the most frequent cue for stress as perceived in connected formal speech.

4.4.2 We have already stated at various points that accurate perception of word and sentence stress has been frequently linked to the hearer's knowledge of the language. Active theories of speech perception assume this to be the case. In the motor theory, for example (section 4.2), stress has been seen as part of the archetype (Lieberman, 1967) functioning at a phonetic and phonemic level with the hearer actively using knowledge of articulatory rules in the decoding process. Lieberman maintains that the basic function of intonation (and of stress as part of intonation) is to establish constraints which allow the hearer to identify segmental, linguistic units:

> "Intonation furnishes acoustic cues that tell the listener when he has a block of speech which constitutes a satisfactory input to his syntactic recognition routines." [8] (1967 : 315)

Jones (1962) seems to anticipate both the motor theory and analysis-by-synthesis when he discusses the difficulty of attributing stress in unknown languages, and as Lehiste states when discussing Jones:

> "The speaker 'knows' which syllable he has stressed; the listener uses his knowledge of the language in addition to the phonetic cues present in the sound wave to determine which syllable was stressed."
>
> (1970 : 119)

However, Fonagy (1966) cited in Lehiste (1970 : 145) reports an experiment in which Hungarian listeners were asked to identify the stressed syllable in Italian and Rumanian recordings. They misjudged stress in 5.6% of cases and Fonagy concludes that greater effort can be fairly well perceived, even if the language is unknown to the listener - especially as some of the errors could be explained by Hungarian stress location rules. On the whole, at least in English, there does appear to be an as yet unquantified[9] and unverified link between knowing a language and being able to locate stress placement and its function, and as Lehiste (1970 : 119) points out, a person familiar with a language does not perceive the sounds objectively from the physical stimulus, but perceives them in a subjective way; that is, the native speaker of a language knows where the stress is because he knows where to make the sounds (c.f. Sanders quoted in section 4.2.2)[10]. In learning terms, this untested claim is clearly central for the development of listening ability and an experiment on stress location by native and non-native speakers of English will be reported in Chapter Five following.

4.4.3 There is little in the literature on the effect of controlled rhythm or stress timing on listening to connected speech in English. Adams (1979) provides the most up-to-date review of work on English speech rhythm from a phonetic and phonological viewpoint, but in the present work we shall

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8. Although intonation is not considered in this work, this reference has been included as stress is an integral part of the intonation archetype in Lieberman's model.

9. Unquantified in the sense of measurable level of language proficiency.

10. It must be said that a considerable amount of work has been done on the location of tonic stress in English, and on the "search for tonics", in particular by Currie (1980, 1981) with regard to given/new information structure.

concentrate on research into the phenomenon of equal stress timing, that is, isochrony, particularly from perceptual and functional viewpoints. Investigators have failed to find that isochrony exists in the production of normal spoken English, or indeed even under conditions of strong metrical rhythm with any degree of exactitude. Classe (1939) is cited by all writers in the literature as the first to show instrumentally that perfect isochrony can only be realised when very specific conditions of similarity of phonetic structure (e.g. equal number of syllables between stresses) and similarity of grammatical structure are fulfilled. However, O'Connor (1965) found that exact isochrony did not exist even under strongly metrical conditions. Uldall's much quoted report (1971) of Professor David Abercrombie's tendency towards isochrony in his reading style perhaps indicates the dilemma which has been partially resolved by the experimental work of Lehiste (1973, 1977), which demonstrates the importance of active stress manipulation for disambiguating sentences which are potentially ambiguous in terms of syntax, and in doing so, has established support for isochrony being a perceptual phenomenon in English. Although the research of O'Connor (1965, 1968) and Bolinger (1965) could only confirm the findings of Shen and Peterson (1962) which rejected the notion of isochrony in production, there appear to be good grounds for supposing that on a subjective and perceptual level, native speakers of English feel that there is a basically isochronous rhythm in English. In other words, it is felt that there is a rhythmic base line of stress timing in English, which is then consciously controlled by the speaker to produce meaningful contrasts and to indicate new or important information, or is controlled indirectly by the phonetics and syntax of the actual speech used (that is, the space between the stressed syllables and the nature of the syntax). Allen (1968, 1972) also supports this close functional link between stress and rhythm on the one hand and syntax on the other, proposed by Lehiste (1973, 1977), stressing the pressure that rhythm and syntax exert on one another,

and thus the importance of rhythmic perception in any performance grammar (c.f. Chomsky in Lenneberg 1967, quoted in section 4.2.2) Allen's work, like that of Lehiste, and Fry (1970), suggests strongly that not only is ability to manipulate stress and rhythm important in effective unambiguous communication, but also that the converse, accurate perception of stress and rhythm, is equally important for unambiguous message reception in connected speech. In particular, Allen (1968) indicates that it is possible to manipulate stress within the rules of phonology and syntax in English connected speech so as to produce perceptually, if not instrumentally, exact isochrony, and that the spacing of stressed syllables and consequent ratio of stressed to unstressed syllables are both critical factors in the maintenance of this rhythm (c.f. Classe op.cit.). The most recent work by Fowler (1979) indicated that "when asked to produce isochronous sequences, talkers generate precisely the acoustic anisochronies that listeners require in order to hear a sequence as isochronous." (ibid : 375), and she concludes that "listeners judge isochrony based on acoustic information about articulatory timing rather than some articulation-free acoustic bias." (ibid : 375).

Martin (1972, 1975) argues that rhythm gives the listener a chance to anticipate what is coming next in the stream of speech. Since listeners know that there will be an accented (stressed) syllable following the last one by a roughly constant interval, they can listen for it. Martin holds, therefore, that listeners organise their perception around the stressed syllable, and moreover that "speaking and listening are dynamically coupled rhythmic activities". (1972 : 489)

Darwin (1975) also carried out related work on the function of prosody as maintaining a coherent auditory signal through switching prosodic contours from one ear to the other. It appeared that listeners were tracking the prosodic contour (or possibly maintaining rhythm) and that this factor overrode syntax, semantics and ear of entry. Darwin concludes that: "the rhythm and melodic aspects of speech may allow the listener to predict when potentially

important speech material may arrive (and perhaps allow him to allocate his processing capacity accordingly)". (1975 : 190) The more recent work of Kirakowski (1978) on prosody and speech perception not only supports Darwin's findings, but also indicates the importance of prosody in enabling the hearer to structure his perception of the message in real time, and in helping to overcome potential grammatical ambiguities. The research by Adams (1979) on the production of correct stress by native and non-native speakers of English, and her conclusion that even advanced level learners require careful training in correct stress production at word and sentence levels for efficient communication, suggests that native speakers not only have an ability to perceive stress in (in this case, formal) connected speech as part of their normal performance grammar (with stress defined as prominence, operationally, by Adams), but also, conversely, that it is likely to play a part in rapid and efficient decoding of connected speech. This latter point would be quite in accordance with the complementary functions of sentence stress as usually defined, that is, firstly, for emphasis, contrast and the focussing of new or relevant information, and secondly, and perhaps more crucial to the present problem of language development, as the means by which maximum information is carried on the speech wave in minimum time through the weakening of unstressed syllables. With regard to the last function, analysis of spontaneous Edinburgh speech by Brown, Currie and Kenworthy(1980 : 72-75) suggests that when there is an increase in word rate for given or parenthetical information, there is a corresponding decrease in the number of stressed syllables (that is those with main or tonic stress); or, put another way, there is an increase in the number of unstressed syllables between each stressed syllable or breath pause.

4.4.4 Thus far, we have taken the view that stress as a prosodic feature, though not fully understood, is acknowledged as playing an important role in

efficient and rapid production and reception of connected English speech. We have accepted Lehiste's (1970) view that stress is associated with syllables produced with greater effort and energy, and that the phonetic correlates of this are duration, pitch and intensity. We have also attempted to link the views of phoneticians regarding the importance of knowledge of articulatory setting, syntax, etc., for the accurate perception of stress with the models and theories of speech perception discussed earlier, suggesting the complementary natures and functions of stress and syntax and the interdependence that is demonstrated between them in connected speech. We then suggested that while isochrony may not exist objectively (or as measured instrumentally) in spoken English, subjectively and perceptually it may have an important function by virtue of its being the basic rhythm which all native speakers of English feel to be present in speech, and which can then be manipulated, or perceived as manipulated, by speakers and hearers respectively to produce meaningful effects in otherwise ambiguous or unmarked syntax. In terms of the learner of English, this might suggest that the absence of isochrony as a perceptual feature of the performance grammar would mean, firstly, an inability (or reduced ability) to manipulate sentence stress meaningfully in production (c.f. Adams op.cit.), and to perceive stress meaningfully when listening, and secondly, given the close complementarity of stress rhythm and syntax, and the function of stress in maximising information rate, a sharply reduced ability to decode efficiently at speed.

4.5 Speech perception and the teaching and testing of listening comprehension

4.5.1 Apart from the work by Kirakowski (op.cit.) on prosody and speech perception at sentence and text levels using normal, monotone, stress-timed and syllable-timed prosodic patterns, there is little in the literature on the perception of speech rhythm in the ability to understand connected speech. Kirakowski's findings that the perception of stress and rhythm appears to be a pre-grammatical feature of language processing and that stress and grammar

are interdependent are of obvious relevance to second language learning and to the approach taken in this thesis that active models of speech perception could be usefully considered as developmental models for second language learning and has links with the findings in studies of child language acquisition cited in 4.3.2 above. The position of stress perception in relation to the language ability of learners will be investigated in Chapter Five, following. The research by Lehiste (1973, 1977) described above has also offered insights for second language learning through its linking of rhythmic units and syntactic units in short sentences. Adams' (op.cit.) work on the need to train learners in the accurate production of stress and rhythm in connected English speech also touches on this area. Much of the literature concerned with listening comprehension in second language learning is either taken up with modified models of the listening process relevant to the teaching of listening (e.g. Corder 1973; Rivers 1971; Widdowson 1978), or with advice and conjectures, relying on extrapolations from linguistics and psycho-linguistics (e.g. Rivers 1968; Jakobovits 1970), or with methods for best exploiting 'authentic' materials (Brown 1978), or with particular specialised skills such as note-taking, or listening for specific information (e.g. Weidliger, 1979, on 'listening tracking'; Majhanovich and Robinson, 1979, on listening for specific information and global listening), or with the importance of particular functional problems of learners and their linguistic sources. Frankel (1977), for example, conducted research into the importance of logical connectives in note-taking errors in university level foreign learners of English.

4.5.2 There has been consistent emphasis over the past twenty years on techniques for measuring listening comprehension. Recently, Carroll (1980) and Morrow (1977) have written extensively on the need for listening comprehension testing techniques to mirror current emphasis on communicative teaching techniques. At present, tests of achievement or proficiency in listening

tend either to test specific areas, such as vowel/consonant discrimination, significance of stress placement, and attitudinal intonation contours (e.g. EPTB Versions C & D, ELBA, PLAB, TOEFL)[11], or are concerned with testing complex skills of understanding (e.g. Cambridge FCE and CPE)[12], or with testing functional or communicative aspects of listening in 'authentic' settings (e.g. ARELS examinations[13], Cambridge FCE and CPE interviews). In particular, one problem with listening comprehension tests involving the complex skills, such as a text followed by multiple choice questions, is that they tend to measure intelligence and memory factors as well as "pure comprehension" (Johansson, 1975). Johansson suggests that the partial dictation technique in which students are required to complete ends of phrases or sentences while listening is a useful test of listening comprehension since "In order to provide the correct response, the student must have assigned a correct syntactic and semantic analysis to the test item i.e. providing the correct response is impossible without comprehension". (op.cit. : 146). He concludes that unlike ordinary full dictation, partial dictation would seem to measure mainly perception, rather than emphasising spelling ability and indicating an active command of sound spelling relationships. The variety of testing approaches suggests that both discrete and integrated techniques have their place and also that the complexities of listening comprehension are far from understood.
We have also seen that it is the view of some phoneticians and psycholinguists that accurate perception of stress may well be linked to accurate decoding of the message, and also that the converse, accurate production and perception of the message in real time, is linked to accurate manipulation of the stress and perceived manipulation of the stress within the rules of the syntax and phonology of English.

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11. EPTB : English Proficiency Test Battery (Davies Test)
ELBA : English Language Battery
PLAB : Professional and Linguistic Assessments Board
TOEFL : Test of English as a Foreign Language (American)

12. First Certificate in English; Certificate of Proficiency in English

13. Association of Recognised English Language Schools (Oral/Aural)

4.5.3 In the case of the native speaker, accurate perception of the message (as distinct from fully understanding the meaning), given no noise or other interference, can be taken as a given. This ability to follow the message has been used successfully as a technique for measuring the intelligibility of messages in the presence of noise or other inhibiting factors by Speaks et al. (1972) and by others working in the field of acoustics. The results of their experiments using short sentences indicated that subjective estimation of intelligibility by listeners was as reliable a technique for measuring intelligibility as shadowing (i.e. constant vocal following of the perceived message) without the 'competitive feedback' of the latter technique. Turning this notion of intelligibility round, we might say that intelligibility need not only be a measure of the message in acoustic terms, but where the ability to perceive the message correctly cannot be taken as a given, as in second language learners, intelligibility can also be regarded as a measure of the ability of a listener to follow a message as a piece of meaningful connected language.

In second language learning studies, there has been a limited amount of inconclusive and unsatisfying work on intelligibility. Strevens (1954), for example, tested the comparative intelligibility of R.P. against local varieties with Ghanaian university students and found that in general, R.P. was more intelligible than varieties of Ghanaian English which were not the students' own. Brown (1968) attempted to test these findings some years later and found evidence which suggested the contrary, that R.P. was in fact the least intelligible overall. One weakness of both tests appears to be that 'intelligibility' was defined as the ability to discriminate between phonemes produced according to R.P. and the local varieties. This narrow definition of intelligibility would seem to have very questionable validity, especially in the light of the views expressed earlier by Sanders (section

4.2.1) and Liberman (section 4.2.1) in their criticism of passive feature detector models of speech perception. A weakness of the study reported by Olsson (1972) on the intelligibility of incorrectly formed sentences for native speakers is that it is concerned with static and non-cumulative processing, that is, with no problem of time constraints to cause processing difficulties. In the intelligibility tests cited above by Speaks et al. (op. cit.) listeners were required to match the ongoing message within time constraints and remain constantly ready for further processing.

Preliminaries to Chapter Five

4.6 We have already suggested strongly that we feel that there is a sound theoretical justification for considering that speech perception is an active and dynamic matching process in which both knowledge of the different linguistic levels of the language, and an ability to manipulate this knowledge in production and perception is essential for processing in anything like real time to take place. In particular, the evidence offered by Allen (1968, 1972) and Lehiste (1973, 1977) suggests that in the continuous stream of speech, the stress rhythm is the means by which the message form is shaped into a perceptual unit, and is also the means by which information flow is maximised. Thus without a corresponding matching rhythmic perception which is able to decode the message in the required time, the listener will rapidly reach channel capacity (i.e. be overloaded by unprocessed messages), with consequent loss of content. We also, therefore, feel justified in taking the view that we can divide listening comprehension into a hierarchy of intelligibility (concerned with the message as a piece of meaningful connected language), and understanding (concerned with more complex notions of function, content, argument etc.). In Chapter Five following, we shall report experiments designed to test the effect of different stress and rhythm patterns on the intelligibility of message in running text and discourse for learners and native speakers of English, and their effect on the overall understanding of the message.

Chapter Five. The perception of stress and rhythm and its role in understanding connected speech : reports of experiments

Chapter Five. The perception of stress and rhythm and its role in understanding connected speech : reports of experiments

5.1 Introduction

This chapter is sub-divided into three parts, each part reporting an experiment on the theme of the perception and production of stress and rhythm in connected speech.

In Part One, Experiment 1. is concerned with establishing stress as a feature of native speaker perception of connected speech, with 'regularisation'[1] of main stress as a means of simplifying the perception of main stress for learners of English, and with providing evidence for considering that the perception of stress is independent of the level of English language knowledge of learners.

In Part Two, Experiment 2. is the report of an analysis of spoken data which provides support for the claim that stress should be considered independent from, but complementary to, syntax.

In Part Three, we report the findings of Experiment 3., which is concerned with the effect of varying the spacing and pacing of stress on the ability of native speakers and learners of English to follow and understand connected speech.

These three experiments are important to the following argument : if accurate stress perception is a feature of English native speaker language ability and is an important factor in the ability to decode connected speech rapidly, efficiently and reliably, then a training in the perception of stress at word and utterance levels is likely to enhance the learner's listening comprehension ability, and such a training should concentrate on developing a sense of the timing of the perceived stress in the learner.

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1. The terms 'regular', 'regularisation' and 'regularised' refer to the technique of altering the temporal occurrence of main stress, so that it occurs at perceptually isochronous intervals.

Chapter Five. Part One

Experiment 1. The perception of 'regularised' and 'authentic' stress by native speakers and by learners of English.

5.2.1 Introduction

Experiment 1. is based on the following premise, which has been described and discussed at length in the preceding chapter: if the perception of main (i.e. sentence) stress and rhythm is a phonological phenomenon in English, actively manipulated in message production, and dynamically perceived in message reception, then we would expect the native speaker of English to be consistently more successful in perceiving stress in spoken text and discourse than the learner of English. If, however, stress is also a perceptual phenomenon independent of specific languages, we would expect that the ability to perceive stress by learners is not necessarily linked to level of knowledge of English in grammatical or lexical terms. For learners of English, the importance of this paradox and therefore of this experiment lies in the argument that, if stress and rhythm are important factors in maximising the information rate (while retaining the intelligibility of the message), then the listener must be able to match perceptually the objective stress and rhythm of the message, or else his channel capacity (i.e. processing ability) will become overloaded, and the message will lose intelligibility for him.

There has been little experimental work in this area in any discipline. It might appear to have superficial links with the so-called 'click' experiments of Bever et al. (op.cit.), but in the present study we have no interest in linguistic segments or deep structure, and are concerned with actual language behaviour. The work of Lehiste has already been cited (1973, 1977) as being important for indicating the connection between the production

and perception of stress and the ability to decode successfully potentially ambiguous syntax, and the work of Kirakowski (1978), referred to in Chapter Four, on the interdependence of prosody and grammar in the perception of connected discourse is also related to the general theme of all three experiments. The experiments by Adams (1979) already described in the preceding chapter on the production of stress by native speakers and advanced learners of English have clear parallels with Experiment 1., which will be discussed below.

5.2.2 Hypotheses

Stress has already been referred to as an elusive phenomenon (section 4.4.1). To set absolute or instrumental standards for stress location would have been extremely difficult, given the continuing dispute regarding stress, and would have gone beyond the scope and limited aims of this experiment.

As stress is a phonological feature of English, we have taken as the standard of stress perception (with regard to frequency and accuracy of location) that of the native speakers who took part in the experiment. From this basic assumption, we have asked the following questions:

1. Do learners perceive fewer stresses and those less accurately than native speakers ? If so, are the differences important and can they be categorised ?

2. Do both learners and native speakers perceive more stresses and those more accurately when listening to 'regularised' connected text and discourse than when listening to 'authentic' text and discourse ?

3. Is agreement as to location of stress between native speakers and between learners higher when listening to 'regularised' or 'authentic' connected text and discourse ?

4. Can the ability to perceive stress by learners in terms of frequency and accuracy of agreement as to stress location with native speakers be said to be linked to the learners' current knowledge of English as determined by hours of English classes attended ? That is, if they know more English, will the learners be better at perceiving stress in connected English text and discourse ?

These questions were formulated into a series of hypotheses which in null form were as follows:

H.1 : Native speakers do not perceive main stress in connected text and discourse significantly more frequently or accurately than learners of English.

H.2 : Native speakers and learners of English do not perceive stress significantly more frequently or accurately in connected text and discourse when that stress occurs at perceptually regular intervals than when it occurs at perceptually less regular or irregular intervals.

H.3 : The ability of learners of English to perceive stress in connected text and discourse in terms of standards of accuracy as set by native speakers is not significantly linked to the learners' knowledge of English as defined by class level.

A 'native speaker' in this case was defined as a subject whose first language was British English. A 'learner' was used to describe a subject who was in the process of learning English (i.e. an active learner) and whose level could be said to correspond to one achieved after taking between thirty and five hundred hours of part-time English tuition, that is, in general terms, from elementary to upper intermediate/Cambridge First Certificate in English levels. Main stress was defined (after Lehiste, 1970) as linguistic

prominence produced by means of respiratory effort, the phonetic correlates of which were higher pitch, longer duration and greater intensity, and which would be perceived by listeners as those syllables heard as clearer, longer, or spoken with greater effort than surrounding syllables.

5.2.3 Design

Subjects were asked to underline the word or part of the word in which they heard main stress as defined. Each word was considered to be a separate case, since each word had potential stress from the subjects' point of view. Thus, a text with 243 words had 243 cases on the vertical axis[2]. Each case then provided a dichotomous datum for each of the fifty-one subjects along the horizontal axis[3]. The word was treated as the dependent variable and each subject's judgement of stress location was the independent variable in all bar one test of reliability, when each subject's judgement of stress location became the dependent variable and the word became the independent variable. Adams (1979) treats the syllable as the dependent variable in her experiment on stress production by native and non-native speakers. However, operationally, in the present experiment, it was felt that there were good grounds for taking the word as the unit or case. Firstly, subjects might simply make errors or put unclear overlapping marks[4]. Secondly, the number of syllables in a word such as 'interesting' is not always clear in spoken English, and might be another source of confusion[5]. Thirdly, and most important, while all words have a potential for being stressed in spoken English, no matter how rarely this may occur in practice, syllables do not have this feature. A misplaced main or sentence stress may be inappropriate; a misplaced syllable stress will be incorrect. Thus, although in the instructions subjects were asked to mark

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2.&3. The data was laid out in this fashion for computer analysis.

4. This was, in fact, noted in materials trials reported in Chapter Seven.

5. It is interesting to note that Adams (op.cit. : 100-105) uses full citation forms divided into syllables e.g. fam/il/ies. In spoken English the example is more likely to be spoken and heard as two syllables.

not only the word but also the part of the word, in the assembling and analysing of the data only the word was used, and each text was seen as a collection of cases on which a subject had to make a decision as to whether he or she had heard a particular case as stressed or not. Subjects were treated either as independent subjects or as two groups of subjects, native speaker (NS) and learner (NNS).

Subjects heard ten texts (Appendix II.1), mean length 212 words (max. 359 words, min. 131 words) in language laboratory conditions. The test was repeated 3 - 4 days later. In the second test, six of the texts were changed with regard to main stress, while four were repeated as in the first test. The term 'regular' (R) is used in this experiment to mean that there was a regular one second space between each main stress (including silent stress). The term 'authentic' (A) is used to mean that there was no attempt to regularise the occurrence of main stress and that any such occurrence was incidental (c.f. O'Connor, 1965 in Chapter 4 of this work on the difficulty of making isochronous recordings of verse).

The conditions for Test 1. and for Test 2. in terms of stress in each text were as follows: Figure 5.1 (computer file names are given in brackets and have no other significance).

Figure 5.1 Arrangement of 'authentic' and 'regular' conditions for texts in Test 1. and Test 2. (Experiment 1).

	Test 1.	Test 2.
Text 1.	(Fred 19) regular	(Fred 20) authentic
Text 2.	(Reed 7) regular	(Reed 8) regular
Text 3.	(Caro 5) authentic	(Caro 6) authentic
Text 4.	(Hair 9) authentic	(Hair 10) regular
Text 5.	(Camb 11) regular	(Camb 12) authentic
Text 6.	(Beeb 3) authentic	(Beeb 4) regular
Text 7.	(Beeb 1) regular	(Beeb 2) regular
Text 8.	(Moral 13) authentic	(Moral 14) authentic
Text 9.	(Bloon 15) authentic	(Bloon 16) regular
Text 10.	(Optic 17) regular	(Optic 18) authentic

Other variables such as sound level, speed, clarity, intonation and speakers were held as constant as conditions of men and machines would permit.

5.2.4 Subjects

There was a maximum of 42 NNS subjects for each test and text. This figure was obtained for the majority of texts but dropped to 18 on one text. All NNS subjects were students at the British Council Language Centre, Rabat, Morocco. They were mainly Moroccan, but also included French, Belgian, German, Italian and Mauritanian students. All subjects could be said to have some French varying between very limited and native. No account was taken of language background as it was felt to be beyond the scope of this experiment. The NNS subjects were aged between 17 and about 50, and level of English varied from elementary (30 hours part-time tuition) to high intermediate (the Cambridge First Certificate in English class with approximately 500 hours part-time tuition over four or five years). The distribution of subjects over five levels used for grading in the Language Centre was as follows:

Level 1. (elementary) : 8 subjects - 30 hours
Level 2. (low intermediate) : 8 subjects - 100 hours approximately
Level 3. (intermediate) : 9 subjects - 200-250 hours
Level 4. (upper intermediate) : 9 subjects - 400 hours approximately
Level 5. (FCE) : 8 subjects - 500 hours approximately

The NS subjects were either teachers at the Language Centre or were members of the M.Sc. Course in Applied Linguistics at the University of Edinburgh. Of the nine, only two could be said to be phonetically or phonologically sophisticated. All NS and NNS were familiar with LL use.

5.2.5 Apparatus and Materials

A recently purchased Stillitron Audio-Active-Comparative LL with cassette decks in student booths was used for the tests in Morocco. In Edinburgh a

Tandberg IS9 LL of equivalent quality was used.

The ten texts (see Appendix II.1 for tapescripts of Texts) differed greatly in complexity, content and structure, speed of delivery, formality and register. There were two BBC News broadcasts, dialogues and texts from language teaching textbooks designed for listening comprehension practice and a Cambridge FCE listening comprehension test text. They were chosen for their wide differences and for their potential in being graded by the test results later.

The recordings for each test were prepared in the following way:

i. those texts or dialogues that were to be heard as 'authentic' in both tests were recorded directly from master recordings.

ii. those texts or dialogues that came from original recordings and which were to be modified were marked for stress (including silent stress) by listening to the original recording. The text was then re-recorded following the stress pattern as marked, and then checked for 'perceptual accuracy' by comparing the original recording with the new 'authentic' recording. If the stress pattern was to be recorded in a strictly 'regular' way, a one second beat from an electronic metronome (a Metrotone®) was passed through headphones to the speakers to ensure that main stress fell on the one second beat. The one second beat was found to be perceptually acceptable to native speakers[6] as a basic rhythmic beat for text and dialogues, and the 'regular' recordings thus produced were within +/- 5 seconds of the 'authentic' recordings.

The recordings were made on Ampex recording tape, and in the Stillitron LL were transferred from an Akai reel-to-reel tape recorder onto cassettes in

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6. That is, native speakers were asked whether they found recordings made with a one second beat had distorted the original unacceptably, or whether the recordings were accurate reflections of the originals and acceptable as spoken English.

student booths. In the Tandberg LL, the recordings were transferred from a standard Tandberg console tape recorder onto cassettes in student booths.

By using original recordings as the basis for all test recordings, it was hoped that the validity of the comparison between 'regular' and 'authentic' recordings would be increased. It was necessary to follow this rather complicated procedure to ensure that the risk of speaker variables distorting results was minimised by using the same speakers for both recordings of each text.

A tapescript of all texts was prepared for use by subjects (see Appendix II.1). The texts were not punctuated beyond occasional dashes where there were pauses in the stream of speech. The dashes were used to break up otherwise dense text.

5.2.6 Procedure

The battery of ten texts was pre-recorded in the LL, and each subject was given a tapescript on entry to the LL. The order of the texts was not randomized. This would have been extremely difficult to accomplish given operating conditions in Morocco. As it was, subjects did not necessarily start at Text 1. and work through to Text 10., and indeed were given no instructions to do so. Subjects selected their own order of working through texts, either simply following the order as presented, or in some cases by going rapidly through all texts, and then working through them again in more detail according to their own order of preference. Subjects took the tests in their class groups with a maximum of fifteen taking the test at any one time. Before subjects listened to the texts in the first test, the procedure was explained, with examples, in English, French and, if necessary, Arabic. The examples used to explain the procedure for the placement of the main stress were:

"Mary had a little lamb its fleece was white as snow",

which almost all students were perfectly familiar with and,

"I went to see the photographer but he wasn't there."

It was explained how one could tap the beat of main stress, and how stress was produced by greater effort, often seen by the listener as a movement of the head[7]. As there were no visual clues in this test, the general instruction to underline words heard more loudly or clearly or as being spoken with more effort was used in preference to any more precise technical or linguistic terminology, as it was felt that nothing would be gained by this, and that it might even confuse or alienate some subjects, especially at lower levels. Any questions were answered before the test began. The tester (the author) was surprised at the understanding of the task shown by subjects of all levels, and their knowledge of the importance of stress (if not their actual performance).

Subjects were told to work through the texts at their own pace, but to try to complete the task during the class session of 30 - 35 minutes. Subjects varied in their approach to the task, some listening through all the texts and then repeating the procedure, others listening very carefully text by text with a great deal of re-winding. No attempt was made to analyse the effect of these differences.

The second test was carried out in exactly the same way some three to four days later for each group.

5.2.7 Results

The data from the tapescripts in the form of words underlined or not underlined by each subject for each text were analysed in the form described

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7. This point will become important for the learning methodology in Chapter Seven, below.

in section 5.2.3, above, using the SPSS program (Nie et al., 1975) and the SPSS Update (Hull and Nie, 1979) Reliability program, on an ICL 2980 computer at the ERCC, University of Edinburgh. File names and test names are those used during the analysis of data and have no other relevance. Two-tailed tests of statistical significance were used. This was felt to be justified given the fact that we consider stress to be not only a phonological feature of English, but also a perceptual phenomenon independent of specific languages, thus we might expect some NNS to achieve as frequent and accurate judgements on stress location as NS. With regard to the comparison of 'authentic' and 'regular' stress patterns, the absence of previous work with NNS in this area, and the lack of a clear-cut theory from which to predict a result also indicated the need for two-tailed tests. Since a number of tests was carried out on the data, we shall present the results relevant to each hypothesis, in turn.

H.1 : Native speakers do not perceive main stress in connected text and discourse significantly more frequently or accurately than learners of English.

It should be remembered that we have taken the NS standard as axiomatic, thus, 'accurately' implies agreement with the NS standard.

H.1.1 The number of stresses marked as heard by each subject in NS and NNS groups was compared, in order to asses whether NS perceived stress more frequently than NNS. Two tests of the data were carried out, the first using the means of each subject's scores for the twenty texts, and the second using the medians of group scores text by text. Scores were tested by subjects and by materials in order to avoid the effects caused by particular texts or by the scores of particular subjects distorting results.

i. Test by subjects

The mean number of stresses perceived for the twenty texts (that is, average number of perceived stresses per text) for each NS and NNS subject was calculated. These were taken from the column results given in Appendix III.1.

Table 5.1 Mean number of stresses perceived for all texts by each subject

NNS :	S.1	: 54.75	S.22	: 49	NS : S.43 : 82.8
	S.2	: 42.9	S.23	: 49.05	S.44 : 50.45
	S.3	: 49.65	S.24	: 56.04	S.45 : 61.2
	S.4	: 60.15	S.25	: 55.25	S.46 : 72.9
	S.5	: 56.9	S.26	: 47.8	S.47 : 67.2
	S.6	: 29.5	S.27	: 45.5	S.48 : 63.65
	S.7	: 37.05	S.28	: 54.35	S.49 : 62.9
	S.8	: 29	S.29	: 51.2	S.50 : 64.35
	S.9	: 35.25	S.30	: 44.35	S.51 : 56.8
	S.10	: 39.9	S.31	: 56.65	
	S.11	: 21.4	S.32	: 50.85	
	S.12	: 28.15	S.33	: 46.9	
	S.13	: 37.25	S.34	: 27.1	
	S.14	: 34.05	S.35	: 53.25	
	S.15	: 32.25	S.36	: 47.95	
	S.16	: 57.1	S.37	: 67.15	
	S.17	: 71.6	S.38	: 21.2	
	S.18	: 56.05	S.39	: 36.25	
	S.19	: 60.45	S.40	: 41.65	
	S.20	: 34.65	S.41	: 43.8	
	S.21	: 55.15	S.42	: 30.9	

The means for all subjects were then ranked in order to find out if there was a significant difference between the means of the NS group and the NNS group, and a z score was calculated using the Mann-Whitney test (Siegel, 1956) for large samples. The ranks of the NS group means out of the total ranks of all subjects were: 27, 38, 43, 44, 45, 46, 48, 50, 51.

$T = 392$

$U = 31$

$U^1 = 347$

The results were then converted to a 'z' score as the number of subjects exceeded twenty.

$z = 3.9$ (i.e. observed z is significant at the 0.01 level : $p < 0.01$)

In terms of the experiment, native speakers perceive stress significantly more frequently, and therefore also more accurately, than learners of English.

These findings were examined by testing the data by materials:

ii. Test by materials

The column scores for each subject (that is, number of stresses perceived) were obtained for each text (see Appendix III.1). The median scores for NS and NNS groups for each text were then calculated. Median scores were used rather than mean scores to avoid distortion due to the very wide range of scores.

Table 5.2 Median Scores of Stress Perceived Text by Text

(see p.155 over)

Table 5.2 Median Scores of Stress Perceived Text by Text

Text	Regular/ Authentic	Median Score NNS	Median Score NS	Cases/ Words
Fred 19	R	38	44	146
Fred 20	A	39	52	146
Reed 7	R	43	55	178
Reed 8	R	50	62	178
Caro 5	A	49	74	220
Caro 6	A	53	76	220
Hair 9	A	41	65	231
Hair 10	R	54	66	231
Camb 11	R	66	80	270
Camb 12	A	61	84	270
Beeb 3	A	58	83	266
Beeb 4	R	70	76	266
Beeb 1	R	59	77	243
Beeb 2	R	66	76	243
Moral 13	A	14	33	133
Moral 14	A	14	40	133
Bloon 15	A	23	48	173
Bloon 16	R	39	55	173
Optic 17	R	61	84	329
Optic 18	A	66	94	329

The significance of the difference between medians for each text for NS and NNS groups was calculated using the Wilcoxon test (Siegel, 1956) for data where there is obvious variance.

$$T = 0$$

$$N = 20$$

$$SD_T = 26.4$$

$z = 3.9$ (i.e. observed z is significant at the 0.0 level : $p < 0.01$)

In terms of the experiment, the finding of this test supports the finding of the test by subjects, above, namely that the null hypothesis does not hold for frequency and accuracy of stress perception with those groups of native speakers and learners of English.

H.1.2 The accuracy of the stress locations as perceived by the NNS group was also investigated descriptively by comparing NNS judgement on stress location with NS judgement on stress location (again taking the NS standard as representing accuracy) in order to see where the groups were in general agreement either as to location of stress or as to absence of stress. Full data are given in Appendix III.2 for all texts.

It was noted that the cases where there was clear disagreement between NNS and NS as to presence or absence of stress location[8] could often be grouped into well-defined categories:

i. emphatic or contrastive stress, for example: I'm so sorry (Caro 5), I like (Hair 9 & 10), one style (Hair 9 & 10), this district (Camb 11), and (Beeb 3), this much (Beeb 1 & 2), in/on/in a balloon (Bloon 15 & 16), your eyes (Optic 17 & 18), what's this for (Optic 17 & 18).

ii. compound proper nouns (metrically iambic), for example: United States (Beeb 3 & 4), Prime Minister (Beeb 3 & 4), Java Sea (Beeb 1 & 2), Secretary General (Beeb 1 & 2).

iii. adjective/quantifer + noun, for example: no end (Beeb 1 & 2), London address (Beeb 3 & 4), any time (Reed 7 & 8), police car (Camb 11 & 12), any moment (Camb 11), rapid journey (Camb 11), American eyes (Beeb 3 & 4), free tickets (Fred 19 & 20), other devices (Beeb 3 & 4).

iv. verb + adverb/adverbial particle, for example: get off (Caro 5 & 6), come across (Hair 9 & 10), shut again (Camb 11 & 12), double up (Moral 13 & 14).

v. noun + noun, for example: coat hanger (Caro 5 & 6), police car

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8. Clear disagreement was defined as being those cases where close to the total number of subjects in one group had perceived a word as being stressed, while no subjects or only a very small number in the other group had perceived that particular word as being stressed.

(Camb 11 & 12).

These observations will be discussed further in section 5.2.8. Discussion.

H.2 Native speakers and learners of English do not perceive stress significantly more frequently or accurately in connected text and discourse when that stress occurs at perceptually regular intervals than when it occurs at perceptually less regular or irregular intervals

H.2.1 Row totals (i.e. totals per word) were grouped for each text for NS and NNS groups to give a measure of group agreement as to stress location for each text in percentage terms. Agreement on both stressed and unstressed cases was used since adding both these scores together gave a measure of total agreement for each text between NS and between NNS.

Scoring procedure:

NS: those cases were counted which had either a score of 0 (meaning that subjects were in complete agreement that a word was not stressed), or of 8 or 9 when N = 9 (meaning total or near total agreement that a word was stressed), or of 7 when N = 7. (See Appendix III.3).

NNS: NNS were scored in two ways:

i. total agreement: that is, those cases where all subjects agreed that a word was stressed or not stressed. (See Appendix III.3).

ii. close agreement: that is, those cases where subjects agreed 'closely' on whether a word was stressed or not stressed. 'Closely' was taken to be those cases which had either a score of 0 or 1 (meaning total or near total agreement that a word was not stressed) or a score or 30 or higher (meaning that there was close or even total agreement that a word was stressed).

In the event, total NNS agreement gave no basis for comparison and close NNS agreement was used as a basis for comparison with NS.

The results are given below in Table 5.3 with texts ranked according to percentage agreement as to stress location. The texts were ranked in order to ascertain whether there was greater general agreement as to stress location in 'regular' or in 'authentic' texts. Since we have adopted the NS standard as the criterion for accuracy, the NS ranking scale can then be seen as a measure of the comparative perceptual difficulty of texts with regard to stress location, and of 'regular' and 'authentic' conditions.

The ranks, percentages and A/R (authentic or regular) conditions were as follows:

Table 5.3 Ranked Percentage "Close" Agreement on Stress Location by Text

NS Group				NNS Group			
Rank	Text	%	A/R	Rank	Text	%	A/R
20.	Beeb 2	81.1	R	20.	Reed 7	62.9	R
19.	Beeb 4	79.3	R	19.	Beeb 4	62.4	R
18.	Fred 19	76.1	R	18.	Bloon 15	58.4	A*
17.	Reed 7	72.6	R	17.	Reed 8	57.9	R
16.	Reed 8	69.6	R	16.	Optic 17	56.6	R*
15.	Bloon 16	68.8	R	15.	Camb 11	56.3	R
14.	Beeb 1	67.9	R	14.	Moral 13	53.0	A*
13.	Optic 18	66.6	A	13.	Beeb 2	52.3	R
12.	Hair 10	64.5	R	12.	Beeb 1	46.1	R
11.	Fred 20	63.1	A	11.	Bloon 16	45.8	R
11.	Moral 14	63.1	A	11.	Fred 19	45.8	R
9.	Camb 11	63.0	R	9.	Beeb 3	44.3	A
8.	Camb 12	62.2	A	8.	Moral 14	43.0	A
7.	Moral 13	61.6	A	7.	Fred 20	41.8	A
6.	Optic 17	61.4	R	6.	Camb 12	41.1	A
5.	Beeb 3	55.3	A	5.	Hair 9	38.5	A
4.	Caro 6	54.1	A	4.	Caro 5	35.4	A
3.	Bloon 15	50.9	A	3.	Optic 18	34.0	A
2.	Hair 9	47.2	A	2.	Hair 10	30.3	R
1.	Caro 5	45.0	A	1.	Caro 6	29.1	A

* possible distortion of results by low numbers of subjects and low scores.

The rankings of 'regular' and 'authentic' texts for the NNS group were then compared using the Mann-Whitney test (Siegel, 1956) for small sample cases. The results were as follows:

Ranks: 'authentic' : 1, 3, 4, 5, 6, 7, 8, 9, 14, 18.

'regular' : 2, 10.5, 10.5, 12, 13, 15, 16, 17, 19, 20.

$T = 75$

$U = 80$

$U' = 20$

Table value for $N_A = 10$, $N_R = 10$ is 23. The observed value is less than the table value. The difference in ranks of 'regular' and 'authentic' texts is significant at the 5% level for a two-tailed test (i.e. $p < 0.05$).

In terms of the experiment, this result provides evidence that NNS are in closer agreement as to stress location when listening to 'regular' texts than when listening to 'authentic' texts. The NS rankings were even more obviously biased towards high ranks for 'regular' texts, thus, it was felt that the results of the NNS test made the similar NS test superfluous, and it could be concluded that NS are also in closer agreement when listening to 'regular' texts than when listening to 'authentic' texts.

A further small test using the above data was carried out to ascertain whether the ranks of texts for the NNS group showed the same order of perceptual difficulty in terms of agreement on stress location as the NS group. Text rankings for both groups were compared using the Wilcoxon test (Siegel, 1956) for large samples, and the results were as follows:

Sum of + differences $T = 100.5$

$SD_T = 26.8$

$z = 0.17$ (Not Significant)

As possible distortion in the NNS ranks may have been caused by three texts, the ranks were re-compared omitting these texts. The results were as

follows:

Sum of - differences T = 54

SD_T = 21.12

z = 1.07 (Not Significant)

For this experiment, therefore, in terms of the order of perceptual difficulty of texts as measured by NS ranks of percentage agreement as to stress location, NS and NNS groups were not significantly linked (c.f. Experiment 3 following).

H.2.2 In H.2.1 we have shown that NNS perceive stress in 'regular' texts in closer agreement with one another as to location of stress than in 'authentic' texts. However, this does not imply that NNS also perceive stress more accurately in 'regular' texts than in 'authentic' texts (in terms of agreement with NS), since the NNS agreement could have been caused by very high or very low scores, or to linguistically inaccurate agreements of the type indicated in H.1.2, above.

In order to ascertain whether NNS were more accurate in stress perception when listening to 'regular' texts than when listening to 'authentic' texts, scores for those texts which had been recorded in both conditions (that is, 'regular' in the first test, and 'authentic' in the second, or vice versa) were compared using the SPSS Update Reliability Program (Hull & Nie, op.cit.). The four texts that were repeated in the same condition in both tests were included in order to show to what extent any increase in scores from the first to the second test can be attributed to 'learning'.

The tables shown below indicate the following:

i. Firstly, the mean[9] correlation coefficient of each NS with all other

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9. The term "mean correlation coefficient" is used informally. It is useful in that it provides a valid means of comparing the overall trend of agreement between NS and NS on the one hand, and between NS and NNS on the other. It is perhaps worth noting that the Reliability program gave over four hundred correlation coefficients for each text.

NS for each text was calculated in order to ascertain whether NS had higher correlation coefficients in 'regular' or 'authentic' texts, and what the degree of difference was.

ii. The correlation coefficients of each NNS with each NS were then summed and the mean calculated to give a measure of the accuracy of stress perception of each NNS, and then from these, the mean correlation coefficient for the NNS group was calculated for each text. As each text was repeated either in the same or the other condition, the results are given for each pair of texts, and the difference in the results is indicated by the positive or negative difference from the 'authentic' to the 'regular' condition.

iii. The 'learning' effect is indicated by the two correlation coefficients given for the four texts that were repeated in the second test in the same 'regular' or 'authentic' condition as in the first test. The correlation coefficient given in the table is the mean correlation coefficient of each NS with other NS for each text.

From table below (Table 5.4), the following points are indicated:

i. In the column showing mean correlation coefficients for the NS group, five of the six texts which were given in the second test in a condition different from the first test show a higher mean coefficient in the 'regular' condition than in the 'authentic' condition. The effect of 'learning' is indicated by the lower difference between A and R texts when the A text is given in the second test. Thus, the result of Optic 17/18, which shows a higher mean correlation in 'authentic' condition than in 'regular' condition could possibly be explained in terms of the 'learning' effect, as the 'authentic' condition is in the second test.

Table 5.4

A. Mean correlation coefficient of agreement as to stress location between NS

Text	Authentic/ Regular	Mean correlation coefficient (2 dec. places)	+/- difference from A to R
Fred 19	R	.78	+.1
Fred 20	A	.68	
Hair 9	A	.51	+.19
Hair 10	R	.70	
Camb 11	R	.73	+.08
Camb 12	A	.65	
Beeb 3	A	.61	+.24
Beeb 4	R	.85	
Bloon 15	A	.54	+.16
Bloon 16	R	.70	
Optic 17	R	.62	-.06
Optic 18	A	.68	

B. Mean correlation coefficient of agreement as to stress location between NNS and NS

Text	Authentic/ Regular	Mean correl. coeff. of NNS with NS (2 dec.places)	+/- difference from A to R
Fred 19	R	.51	+.01
Fred 20	A	.50	
Hair 9	A	.34	+.04
Hair 10	R	.38	
Camb 11	R	.50	+.05
Camb 12	A	.45	
Beeb 3	A	.41	+.25
Beeb 4	R	.66	
Bloon 15	A	.32	+.18
Bloon 16	R	.50	
Optic 17	R	.42	+.07
Optic 18	A	.35	

C. Mean correlation coefficient for repeated texts with NS subjects

(as A. above but with repeated A/R conditions)

			+/- difference from first to second test
Reed 7	R	.74	+.03
Reed 8	R	.77	
Caro 5	A	.53	+.07
Caro 6	A	.60	
Beeb 1	R	.80	+.04
Beeb 2	R	.84	
Moral 13	A	.60	0
Moral 14	A	.60	

ii. NNS group mean correlation coefficients with the NS group were higher in the 'regular' condition of each pair of texts than in the 'authentic' condition, irrespective of the order of conditions in the first and second tests. The difference in the mean correlation coefficients was tested for significance using Fisher's transformation to Z, and by calculating the SE of the difference between two independent coefficients (Guilford and Fruchter, 1978). A z score was then found by dividing the difference in the Z coefficients by the SE of the difference between the two coefficients. None of the differences was found to be statistically significant at the 5% level. However, given the informal nature of the mean correlation coefficient, the 'learning' effect on some results, and the fact that in six out of six texts, the R condition produced a higher mean correlation coefficient between NS and NNS than the A condition, we feel justified in claiming that NNS perceived stress more accurately in 'regular' texts than in 'authentic' texts.

iii. The four texts which were repeated in the same condition in both tests show a small increase (.03, .07, .04) in the mean correlation coefficient from first to second test, or no increase ('authentic' condition in both tests). The 'learning' effect can, therefore, be considered as small, and when applied to the texts which had different conditions in the second test from in the first, would have the effect of almost wiping out the difference between the conditions in Optic 17 & 18, the one pair of texts which did not show a difference in favour of the 'regular' condition.

In terms of the experiments, the above findings indicate that not only do NNS show significantly closer agreement on stress location in 'regular' texts than in 'authentic' texts (from H.1.1), but also that this agreement is more accurate in 'regular' texts than in 'authentic' texts, measured in terms of the NS standard of accuracy.

H.2.3 In order to ascertain whether NS and NNS subjects also perceived stress more reliably in 'regular' texts than in 'authentic' texts, the data from the four texts which had been given in the second test in the same 'regular' or 'authentic' condition as in the first test were examined.

The data in the form of words perceived as stressed or not stressed for each subject was tested for degree of association using Kendall tau (τ) b test for dichotomous data (SPSS program : Nie et al., op.cit.). In the table below (Table 5.5) the mean correlation coefficient[10] for all NS subjects and for all NNS subjects for each pair of texts is given. The variation between correlation coefficients of subjects in each group for each pair of texts is also given.

Table 5.5 Reliability Correlations

NS Group

Text	Mean correlation coefficient	Variation between correlation coefficient	A/R condition
Reed 7 & 8	.81	.71 - .90	R
Caro 5 & 6	.69	.62 - .74	A
Beeb 1 & 2	.87	.72 - .94	R
Moral 13 & 14	.74	.61 - .88	A

NNS Group

Reed 7 & 8	.63	.09 - .86	R
Caro 5 & 6	.49	.03 - .78	A
Beeb 1 & 2	.55	.13 - .91	R
Moral 13 & 14	.50	-.03 - .72	A

From the above table, we can extract the following information:

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10. See note 9. of this chapter for the use of the term 'mean correlation coefficient'.

i. Both NS and NNS groups have a higher mean correlation coefficient for 'regular' texts than for 'authentic' texts. That is, both NS and NNS perceive stress more reliably when stress occurs at regular intervals than when it occurs at irregular intervals.

ii. The variation in correlation coefficients for subjects is far greater in the NNS group than in the NS group, in fact, so great that the figure is virtually meaningless.

Furthermore, given the fact that both the 'regular' texts were more formal in style than the 'authentic' texts, we would wish to claim no more than an indication from these findings that both NS and NNS perceive 'regular' stress in connected text and discourse more reliably than 'authentic' stress.

H.3 The ability of learners of English to perceive stress in connected text and discourse in terms of standards of accuracy as set by native speakers is not significantly linked to the learners' knowledge of English as defined by class level

H.3.1 In order to test this hypothesis, those NNS subjects who had the highest correlation coefficients with NS (i.e. were most accurate in their stress perceptions as measured by NS standards) were extracted from the results provided by the SPSS Reliability program (Hull & Nie, op.cit.) for the six texts which had had a change in stress condition from first to second test. The coefficients for each NNS subject with each NS were summed and the mean correlation coefficient[11] calculated.

In Table 5.6 (page 166) and Table 5.7 (page 168), those subjects are given who were most accurate and least accurate in their stress perceptions in terms of NS standards, together with the mean correlation coefficient of each subject for each of the six texts, and the mean correlation coefficient of each subject with NS for all six texts.

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11. See Note 9. of this Chapter for the use of the term 'mean correlation coefficient'.

Table 5.6 Accuracy of NNS stress perception : Most accurate subjects

Subject	Level	Fred		Hair		Camb		Beeb		Bloon		Optic		Mean
	(low = 1)	R	A	A	R	R	A	A	R	A	R	R	A	
1.	5	.54	.65	.26	.23	.61	.54	.48	.72	.34	.58	.48	.56	.499
4.	1	.60	.58	.43	.37	.63	.53	.52	.75	.-	.45	-	.42	.528
8.	1	.65	.54	.44	.50	.54	.47	.39	.73	-	-	-	-	.532
10.	2	.65	.55	.38	.54	.60	.48	.52	.82	-	.52	-	.34	.540
14.	2	.61	.50	.36	.45	.56	.40	.42	.76	.41	.56	.44	.42	.491
17.	3	.43	.59	.41	.49	.61	.56	.56	.77	.35	.58	-	.49	.531
23.	4	.52	.58	.37	.52	.60	.57	.41	.76	.31	.68	.51	.59	.535
24.	4	.73	.65	.53	.71	.75	.68	.45	.87	-	.67	-	.52	.656
25.	4	.46	.44	.48	.43	.57	.48	.47	.70	.30	.63	.51	.47	.590
29.	1	.55	.61	.30	.56	.60	.49	.48	.79	.48	.51	.55	.37	.524
33.	5	.52	.61	.47	.59	.71	.60	.48	.77	.28	.48	-	.37	.534

With 42 NNS subjects at five levels, the mean group size is 8 or 9. Taking 9 as the mean figure, as 9 is also the size of the NS sample (though 8 for some texts), the ordering of the nine most accurate NNS subjects from the above figures would be: 24, 25, 10, 23, 33, 8, 17, 4, 29, and the ordering of levels would be: 4, 4, 2, 4, 5, 1, 3, 1, 5.

It may be objected that S. 8 completed too few of the texts to be included, and this would have the effect of putting S. 1 in ninth place. The ordering of subjects and levels would then be:

Subjects : 24, 25, 10, 23, 33, 17, 4, 29, 1

Levels : 4, 4, 2, 4, 5, 3, 1, 5, 5.

In terms of ordering, Table 5.7 (p. 168, below) shows that S.39 is the least accurate, S.38 the next least accurate and so on.

As the subjects were ranked only according to level, and there was no objective language grading score for each subject, the calculation of the significance of the ranks of subjects in the above tables was rather complicated.

Firstly the most accurate nine subjects and the least accurate nine subjects were ranked together from 1 - 18. The ranks of subjects at level 1 were then compared with those of the other levels using the Mann-Whitney test, (Siegel, 1956) and this method of comparison was repeated with the other levels, so that the ranks of each level were compared with the ranks of other levels. It might have been expected that levels 1 and 5 would have been significantly lower or higher in ranks than other levels, but since no level produced a significant result (that is, no single level was significantly better or worse placed than other levels), the procedure described above was repeated grouping together, firstly, the ranks of levels 1 and 2, and then the ranks of levels 4 and 5. The rationale behind this grouping was that even given the most informal grading, one would have expected levels 1 and 2 to fill the lowest

Table 5.7 Accuracy of NNS Stress Perceptions : Least accurate subjects

Subject	Level (low = 1)	Fred		Hair		Camb		Beeb		Bloon		Optic		Mean
		R	A	A	R	R	A	A	R	A	R	R	A	
39.	1	.35	.31	.35	.05	.29	.08	.24	.27	.-	.20	-	neg.	.214
38.	2	.43	.13	.28	.18	.39	.27	.51	.25	-	.24	.31	.25	.294
12.	2	.31	.49	.17	.31	.14	.32	.63	.17	-	.29	-	.26	.309
34.	4	.44	.49	.32	.26	.46	.21	.56	.43	.25	-	.52	.02	.320
19.	3	.41	.35	.30	.29	.41	.41	.41	.34	.26	.31	.26	.16	.325
42.	1	.35	.48	.28	.14	.62	.36	.36	.42	-	.34	-	.15	.350
41.	1	.29	.42	.20	.29	.40	.36	.43	.33	-	.38	-	.46	.356
11.	2	.61	.29	.25	.23	.37	.37	.57	.18	-	.42	-	.31	.360
36.	3	.33	.41	.20	.40	.43	.42	.61	.31	.23	.41	.38	.41	.378

nine places, and that levels 4 and 5 would fill the highest nine places.

The results were as follows:

Level 1 and Level 2

$T = 1, 6, 7, 12, 2, 3, 8, 16$ $\quad N_A = 8, N_B = 10$

$= 55$

$U = 80 + 36 - 55$

$= \underline{61}$

$U' = 80 - 61$

$= \underline{19}$

As the value of U is greater than the table value, the result is not significant ($U \leq 17$ at the five per cent level of significance for a two-tailed test : Not Significant). In terms of the experiment, levels 1 and 2 are not significantly worse placed in the ranks than other levels.

Level 4 and Level 5

$T = 4, 15, 17, 18, 10, 11, 14$ $\quad N_A = 7, N_B = 11$

$= 89$

$U = 77 + 28 - 89$

$= \underline{16}$

$U' = 77 - 16$

$= \underline{61}$

($U \leq 16$ at the five per cent level of significance for a two-tailed test : $p < 0.05$). In terms of the experiment, levels 4 and 5 are significantly better placed in the ranks than other levels.

With regard to the hypothesis, H.3, given that only the ranks of the upper levels produce a significant result, it does appear, at lower levels of language attainment at least, that the ability of learners to perceive stress in connected text and discourse in terms of standards of accuracy as set by native speakers is not significantly linked to the learners' knowledge of English as defined by class level.

H.3.2 Finally, we also wished to examine whether the subjects who were most accurate in terms of NS standards were also most reliable. The correlation coefficients of reliability for NNS (established using the SPSS Reliability Program [Hull & Nie, op.cit.]) were obtained for each subject and the mean coefficient for the four repeated texts was calculated for each subject. The highest mean correlation coefficients were as follows: Table 5.8 (p. 171).

It appears, comparing the results below with the results of Table 5.6, Most accurate subjects, that accuracy and reliability are closely linked, as eleven out of the twelve subjects in Table 5.8 were also in Table 5.6, Most accurate subjects.

Table 5.8 Reliability of stress perception and NNS level : NNS subjects with highest correlation coefficients

Subject	Mean correlation coefficient of reliability				Class level
	Reed 3/4	Caro 5/6	Moral 13/14	Bloon 15/16	
1.	.82	.61	.51	.19	5
4.	.77	.63	.66	-	1
8.	.81	.54	.70	-	1
10.	.71	.49	.78	.62	2
14.	.64	.71	.74	.30	3
17.	.68	.38	.71	.57	3
18.	.51	.49	.62	.71	3
23.	.74	.70	.71	.72	4
24.	.86	.78	-	-	4
25.	.70	.51	.67	.69	4
29.	.78	.67	.91	.46	5
33.	.74	.61	.57	.59	5

5.2.8 Discussion

The difference between median scores in H.1.1 between NS and NNS suggests that either NNS subjects just did not hear stresses as defined in the instructions as often as NS, or that their perceptions were being overloaded by the continuously arriving discourse, or that they were, in a sense, looking for the wrong thing in the wrong place (c.f. the conclusion of Daniel Jones (1962) discussed in Chapter Four regarding knowing what to look for in stress perception). Furthermore, lower column scores of NNS subjects (that is, fewer stresses perceived) did not automatically mean a lower correlation coefficient with NS subjects (that is, poorer agreement) than those NNS subjects who had high column scores. Indeed from the results of H.2.1 and those of H.3, it is clear that very high column scores or scores close to the NS mean scores may in fact have low correlation with NS scores. That is, NNS subjects who thought they perceived a large number of stresses and marked their scripts accordingly did not necessarily perceive those stresses accurately. This may suggest that with a lower potential perceptual input than NS, or with perceptions normally tuned to a different input, the NNS subject may become less accurate, the more stresses he thinks he has perceived.

The specific cases in H.1.2 where there is poor agreement between the NS and NNS groups as to stress location suggests that, in those categories where there is also poor agreement in both 'regular' and 'authentic' texts as to stress location as indicated by high NS scores and low NNS scores (e.g. "in a balloon" in Bloon 15 & 16), there is a need for more basic perceptual training at a static level[12], and with an emphasis on correct production as well as correct perception[13]. In cases such as the one given as an example above, even those NNS subjects who had a high measure of agreement with NS subjects

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12. That is, with no speed or rate of information factors.

13. Given the view expressed in Chapter Four that the two processes are closely linked at a low level.

over all texts (as indicated by correlation coefficients shown in H.3) did not agree with NS subjects on the location of stress under either the 'regular' or the 'authentic' condition of recording, while all NS subjects were in agreement. It should also be noted that in these particular cases, any attempt to use the syntax or content words of the utterance to predict stress would have led to errors. While such a process may have accounted for some of the errors of the advanced students, it would not account for the errors at lower levels, where the syntax and content words may have been unfamiliar. This point encourages one to suppose that the problem lies at the perceptual rather than the linguistic level.

It might be argued that one mis-perception may lead to another - given that we hold the view that almost all spoken text and discourse in English has a relative regularity. Or, on the other hand, it might be argued that the concentration needed by the learner to perceive one stress accurately may cause a time lag, which would increase the chances of its being followed by several mis-perceptions through overloaded channel capacity.[14] An even more conjectural approach to the analysis of mismatching would be to propose that there is a stress shift caused by active and consistent mismatching due to mother tongue or some other second language interference. If, in the results, there had been a high number of NNS subjects who had high agreement as to stress location over all texts, and these NNS subjects had low agreement with NS subjects over all texts, then it could have been argued that NNS subjects were imposing their own main stress patterns (of, for example, French or Arabic, in this case) when receiving the incoming message. While one has the impression that this phenomenon appears frequently in production (that is, the untrained or unguided learner will produce stress and rhythm patterns closer to

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14. In observations of subjects during the test of materials reported in Chapter Seven, a syncopation effect was found.

his or her first language when reading or speaking), there is no evidence for this in the data presented in this experiment. If there were, we could expect consistently high scores for agreed mismatches over all texts between NNS, rather than the very specific cases of agreed mismatches within texts, which, we have argued, is a static problem rather than a dynamic problem. Learners' own patterns of stress perception and production, it is felt, probably serve only to disrupt his ability to match the perceived stress with the stress as encoded, that is, the timing[15] of learners is out in many cases, and does not conform to any other apparent timing sequence.

Some of the NNS subjects' scores were no better than random. One subject (39) in this category had a level of English equivalent to approximately three hundred hours of part-time tuition. Another (34) had a good reading knowledge of English, and writing ability, and a reasonable command of spoken English (communication from class teacher), but was known to be a poor listener. At this stage, we would not wish to claim a link between stress perception and listening comprehension, only to emphasise that there appears to be no necessary link between the ability to perceive main stress and level of knowledge of English as defined by a number of hours of tuition, since we were able only to show that higher levels performed better than other levels on stress perception, but not that the lower levels performed worse than other levels. This was described as paradoxical earlier, as it may seem strange that native speakers should have an ability to perceive stress with relatively high and consistent agreement among themselves (and also have an implicit or explicit knowledge of the phonological and syntactic rules of English), while learners who know neither phonological rules nor syntactic rules in any depth may perceive stress more accurately and consistently than those learners who may be said to have a

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15. The notion of timing will be developed further in Chapter Six, following.

good knowledge of both syntax and phonology in English. This suggests that stress and rhythm may be operating both on and with syntax (in a separate yet complementary manner, as it were). Thus learners may be able to perceive main stress in English by virtue of having 'a good ear', or by regular exposure to spoken English over time, or by some form of training in stress perception.

The ranking of the texts, themselves, by NS subjects (H.2.1) suggests that those written to be read aloud (BBC news, ELT texts) are more easily perceived in terms of main stress location than those based on dialogues or conversation (c.f. the findings of Experiment 3, Chapter Five, Part 3). It is not surprising that the BBC news texts should have had high rankings in both tests. A news scriptwriter has an interest in making his product as perceptually straightforward as possible, given the speed and information rate of news broadcasts. It may also be remembered that there was little difficulty in establishing the stress and rhythm patterns of the news texts, unlike some of the dialogues.

5.2.9 Summary and conclusions

We have shown that there are significant differences between the perception of stress by learners and native speakers of English in terms of frequency and accuracy, that, for both learners and native speakers, 'regular' stress is more easily and accurately perceived than 'authentic' stress, and that accuracy and reliability of stress perception by learners does not appear to be linked to level of knowledge of English. However, these findings are only relevant to the development of listening ability if the perception of stress and rhythm can be shown to play a role in decoding the perceived message. While native speakers obviously need a knowledge of syntax and lexis (albeit implicit) for a message to be intelligible, is the ability to perceive stress also an important factor in being able to follow that message ? If so, then

while the grammatical and lexical knowledge of so-called advanced students (i.e. advanced in terms of hours of tuition and grading tests of grammatical and lexical knowledge) is essential to full message decoding, the absence of the ability to match their perception of the stress pattern to the stress pattern of the message (that is, the stress pattern of the message as encoded) may severely limit channel capacity, and therefore the ability to take in information at anything approaching native speaker rates and ultimately may limit understanding. The possible link between stress perception under different conditions and the level of understanding of spoken text and discourse by learners and native speakers will be investigated and reported in Experiment 3. in this chapter.

Chapter Five Part Two

Experiment 2. The production of perceived stress by learners of English

5.3.1 Introduction

Experiment 2 is concerned with determining the effect on the reading performance of learners and native speakers of English of text marked for stress by the subjects themselves. A secondary objective of the experiment was to gain insights into the position of sentence level stress in relation to syntax and intonation.

As in Experiment 1, there seemed to be little directly related experimental work in applied linguistics or language teaching. Adams[1] (1979) experiment on the perception of stressed syllables produced by native and non-native speakers may appear to overlap with both Experiment 1 and Experiment 2 of this present work, but the aims and objectives of her experiment are fundamentally different, as are the design and subjects. To quote Adams:

> "The object of the perception test was to establish with reasonable accuracy which syllables in several utterances were stressed by both categories of speakers. This was done as a preliminary to investigation of the factors which influence the listener's perception of stress." (p. 99)

Kirakowski (op.cit.) conducted a series of experiments to show the interdependence of prosody and grammar in the perception of connected speech and found evidence to suggest that prosody may be responded to before grammar.

Brazil, Coulthard and Johns (1980) have carried out discourse analysis with the aim of possible application of results to the systematic teaching of intonation, and the work of Brown et al. (1980) may also have important implications for the teaching of both stress and intonation at advanced levels. With regard to the present experiment, it was felt from experience

that intonation in language learning terms is an advanced skill, at least advanced when used successfully, and that while learners have been able to perceive attitudinal meaning, they have great difficulty in producing the correct patterns, and also have great difficulty in following the complicated models that have been used both as descriptions of English intonation and as teaching devices (e.g. Halliday, 1970; O'Connor & Arnold, 1973). The present experiment concentrates on stress production rather than intonation, and the results are based on the subjective assessment of the author rather than on established or instrumental testing procedures. The results must therefore be regarded with circumspection, and should be seen within the context of the whole series of experiments.

5.3.2 Design

NNS subjects from each language learning level described in 5.2.4 and NS subjects were asked after they had completed the second test of Experiment 1 to read a selected number of extracts from the ten texts (see Appendix II.1) which they had heard on tape, following as closely as possible their own stress marking. This was done immediately after they had completed Test 2 of Experiment 1, so that the exercise was still relatively fresh in their minds.

5.3.3 Subjects

Fourteen NNS took this test and two NS. The NNS were selected as representing a wide range of linguistic knowledge and ability, but were not ranked in any way other than the notional number of hours they had received as in Experiment 1. The distribution according to levels was as follows:

1A (elementary): five subjects; 2B (low intermediate/approximately 100 hours): three subjects; 4F (upper intermediate/approximately 400 hours): two subjects; 5A (Cambridge FCE class/500 hours): four subjects.

5.3.4 Apparatus and materials

Subjects were recorded directly onto tape. In Rabat this was onto an Akai tape-recorder via a Sennheiser microphone, and in Edinburgh using equipment of similar quality.

Four extracts from texts used in Experiment 1 were selected. These were from Fred 20, Reed 8, Camb 12 and Beeb 2. The first had been heard under 'authentic' conditions, the second under 'regular' conditions, the third under 'authentic' conditions, and the fourth under 'regular' conditions. All extracts were intended to be read aloud by a single speaker.

5.3.5 Procedure

Each subject was asked to record the four extracts using his or her own tapescript immediately after finishing the second session of Experiment 1. Each subject was told to read the four extracts into the microphone and to follow their stress markings as closely as possible. They were told not to worry about the grammar and vocabulary that they did not know, but simply to read as best they could. No help of any kind was given during the test.

5.3.6 Results

The recordings were then assessed by the author. They were not written out phonetically, nor were they subjected to any form of textual or discourse analysis, since this would have gone far beyond the very limited objectives of the experiment, and would have required far more information on the subjects and closer control, both of which were operationally impossible. No rankings or any other measured judgements of reading ability were made.

An analysis for each subject text by text is given in Appendix III.4. In general terms, the analysis produced the following findings, which of course, must be subject to the proviso mentioned earlier concerning subjective assessment:

Native speakers: One NS (S. 49) had had very high agreement scores with other NS throughout Experiment 1. S. 49's performance reflected the original fully. Syntactic breaks and sense pauses were those of the original recordings when compared, and almost all main stresses marked corresponded to those of the original. Those which differed were not important in any emphatic or contrastive way. S. 57 (a native speaker) gave a normal native speaker reading, but one which differed in places from the original. Syntactic breaks and sense pauses were those of the original, but, at certain points, especially in the third text (Camb 12) main stress differed in such a way as to alter the original sense of the text.

Learners (NNS): The analysis of the readings given by the fourteen NNS subjects indicated that the differences between NNS and NS could be grouped into several main categories:

1. Word stress in words of two or more syllables (c.f. in noun + noun and adjective + noun combinations in 5.2.2.i of Experiment 1). There were four possibilities in reading which linked perception to production:

i. accurate perception + accurate production
ii. accurate perception + inaccurate production
iii. inaccurate perception + accurate production
iv. inaccurate perception + inaccurate production

These results could, unfortunately, only be ascertained where the subjects had actually indicated the syllables or part of the word where the stress was perceived to occur. In those subjects who marked syllables, case ii. was most frequent[16], while case iii. was least frequent. As data was limited,

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16. This finding should be compared with those reported during the course held at Stevenson College and described in Chapter Seven.

no difference between levels on this point could be discerned. This finding, that perception tends to be more accurate than production, and that production is in some way distorting accurate perception parallels the suggestion made in the introduction that learners are frequently able to make judgements on the function of certain intonation contours without being able to produce them accurately.

2. Subjects made only rare falls in intonation at sentence, clause or other syntactic boundaries, or where indicated by the sense of the text. The texts had not been punctuated, apart from occasional dashes, (see Appendix II.1), thus, subjects had to rely on syntax and sense to make boundaries and the consequent rises or falls. As might be expected, it was found that lower level subjects spoke in a monotone with only main stress and few rises or falls. Higher levels of NNS were able to give many more sense pauses or syntactically indicated breaks, since they were able to follow what they were reading and to use it to guide them.

3. All NNS were able to follow their own stress markings to some extent, though this depended on the location and frequency of the stress markings in some cases, and it must be supposed that this in turn altered the effect on the overall performance. Those subjects who came closest to NS in agreement in Experiment 1 on location and frequency of stress markings gave the readings closest to the original in terms of rhythm, if not in terms of accurate rises and falls at syntactic breaks and other sense boundaries. In the cases of two NNS beginners who had shown very high agreement with NS in Experiment 1, this meant that readings were perceptually accurate and correct in terms of English rhythm[17], and were at fault only by unavoidable pronunciation errors and through absence of

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17. These recordings were played to several native speakers all of whom found them remarkably rhythmic, and one native speaker found it difficult to believe that it was a beginner reading in one case.

syntactic breaks and other sense pauses - also unavoidable in view of their very limited linguistic knowledge. Those beginners, however, who had poor agreement with NS in Experiment 1 were barely intelligible and at times broke down into incoherence.

Those subjects (e.g. S. 55) who heard too many stresses in Experiment 1 gave a reading that was almost syllabic in its rhythm and timing in many places.

Those subjects (e.g. S. 9 and S. 56) who had heard too few stresses in Experiment 1 had different problems. The readings were given as no more than a series of words, usually accurately read but without textual sense. The rhythm, in turn, was halting, almost staccato. In the case of S. 9, the rhythm improved in proportion to the number of stresses.

4. Lower level subjects (S. 5 and S. 7) often had poor control of their breathing and tended to run out of breath at inappropriate points in reading the texts.[18]

5.3.7 Discussion

While NS appear, not surprisingly, to be able to follow and produce stress as perceived, and are also able to control rises, falls and modulation by active use of syntax and the sense of what they are reading, NNS are only able to do this where their linguistic knowledge permits, and even this does not seem to be a guarantee of success. It may be that the effect of reading at speed is to limit channel processing capacity to main stress where indicated and to only the most obvious syntactic or sense boundaries, where the NNS had

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18. This must be compared with the frequent poor control of breathing by young children in recounting long series of events.

knowledge of these. To read aloud at speed accurately, even the NS needs to be able to look ahead of what is actually being spoken, but the deliberateness of most NNS, and the frequent concentration on the word by some subjects, makes it clear that looking ahead takes place only rarely and only at the highest levels (S. 1 and S. 29). There is no evidence to suggest that the inability of subjects to make appropriate rises or falls is caused by a problem in stressing and falling or rising at the same time, although in one case (S. 14), concentration on the stress in a polysyllabic word leads to a neglect of its place in the sentence and of a necessary fall, although the word is followed by a helpful dash.

From the subjective assessment of the data and the results, it seems possible that if NNS have perceived main stress accurately they are able to produce it (except for specific word stress errors), but are limited in their performance by not only their linguistic knowledge as in the case of beginners, but also by the channel processing capacity of that knowledge as it is received from the text, even if it is known. Thus, even some of the NNS with the most complete linguistic knowledge cannot process the syntax in addition to the main stress when reading, as shown by the absence of rise/fall intonation contours at appropriate syntactic or sense boundaries. One might argue from this that if syntax operates such control on intonation (excluding attitudinal intonation), then it should be treated as a skill which is co- or post-syntactic. Sentence stress, however, as we have seen, can be perceived and produced with only limited, even minimal, syntactic or lexical knowledge.

From the data and the tentative findings, we have suggested that mis-perception can lead to different effects at different levels. In the case of the NS, it may lead to a misunderstanding of the sense as shown by its re-production; in the case of too few stresses perceived by NNS, it may lead to the abandonment of any sense of textual unity; in the case of too many stresses perceived by NNS, it may cause the distortion of the rhythm and

consequent loss of sense of the text. Thus, in all three cases, the effect is to reduce the intelligibility of the text as originally given. It has been stated frequently in the report of this experiment that no firm conclusions can be drawn from this experiment, as analysis of the data was undertaken solely by subjective assessment. Certain of the findings, however, will be tested in the next experiment, when we shall investigate whether the regularity of stress timing, and its consequent ease of perception is linked to level of comprehension.

Chapter Five Part Three

Experiment 3 The ability of native speakers and learners of English to follow, understand and shadow connected text and discourse with varying spacing and pacing of stress.

5.4.1 Introduction

Experiment 3 was concerned with two aspects of listening ability. Firstly it was designed to indicate possible differences in approaches to listening by native speakers (NS) and learners of English (NNS). Secondly, it was designed to show the effect of different speeds and frequencies of main stress beats on the ability of NNS to follow and understand connected spoken text and discourse. More particularly, the experiments tried to indicate the effect of changes in the spacing and pacing of stress on the subjects' assessment of their own ability to follow and understand spoken text and discourse, and on their actual performance.

The link between stress perception and knowledge of a particular language was discussed in Chapter Four of this present work. In designing Experiment 3, an attempt was made to turn the findings of Jones (1962) on their head, that is, that knowledge of a language is necessary for accurate stress location. When turned around, this becomes a question of whether we can establish the effect that changing frequency and location of stress has on understanding, rather than what effect knowing a language has on stress perception. We have already shown in this regard that NS have significantly more frequent and more accurate perception of stress than NNS, but at the same time, that in learners of English, at least up to Cambridge First Certificate in English standard, level of knowledge of English as measured by hours of tuition is not a significant factor in frequency or accuracy of stress perception.

In language learning terms, the experiments were designed to indicate the potential value of specific training methods, and also to show, if possible, aspects of the listening skill which were clearly different from other language skills and which appeared to require special training and attention.

We shall first attempt to clarify and expand the division of comprehension into "intelligibility" and "understanding", first given briefly in Chapter Four (4.6), and which is central to the operation of Experiment 3. Most tests of intelligibility (for example, Miller,Heise & Lichten, 1951) are based on a statistical view of intelligibility, in which the intelligibility of the message is usually expressed as a percentage of test items correctly repeated, recorded or identified as a function of some physical dimension of the signal (intrusion of white noise, for example). However, in the following experiment, we take the view of Speaks et al.(1972) that the intelligibility of free-running connected discourse can be seen as a decision by the listener that specified how well a message was "understood". As Speaks et al. state, one of the problems inherent in this approach is that although listeners may show consistency in adjusting speech to the point at which it is intelligible, there are difficulties in deciding what a listener meant when he said that he could "just understand" the meaning of "almost" every sentence or phrase. To quote Speaks et al.:"the criterion that the listener adopts obviously is heavily dependent upon his interpretation of subtle verbal definitions of intelligibility provided for him by the tester" (op.cit. : 592).

A second problem is that intelligibility is usually expressed as a threshold level of decibels, while ideally one would like to link a physical characteristic of the signal with an index of the magnitude of intelligibility expressed in per cent, so that a listener could express intelligibility in percentage form. A third problem raised in the above cited work, but one which will be used to advantage in the present experiment, is whether tests of

intelligibility, such as a passage followed by questions, which contain potentially contaminating variables such as intelligence, memory, prior acquaintance with the message content, equivalence of alternative forms or passages, degree of redundancy, argument, etc., can be seen purely as a measure of "intelligibility". With regard to the complex skill of listening comprehension in second language learning, we hold the view that while the question "How well could the listener understand the message?" is central, the other aspect of comprehension, with all the variables listed above, is also important if a learner is to achieve proficiency in understanding connected discourse in real time.

Furthermore, as tests of intelligibility do not usually go beyond phrase or sentence length, variables of memory, processing time, ability to follow an argument etc. are not likely to be of concern to the listener's understanding. However, listening comprehension in second language learning is rarely limited to isolated sentences and may involve listening to lectures or other lengthy and complex discourse.

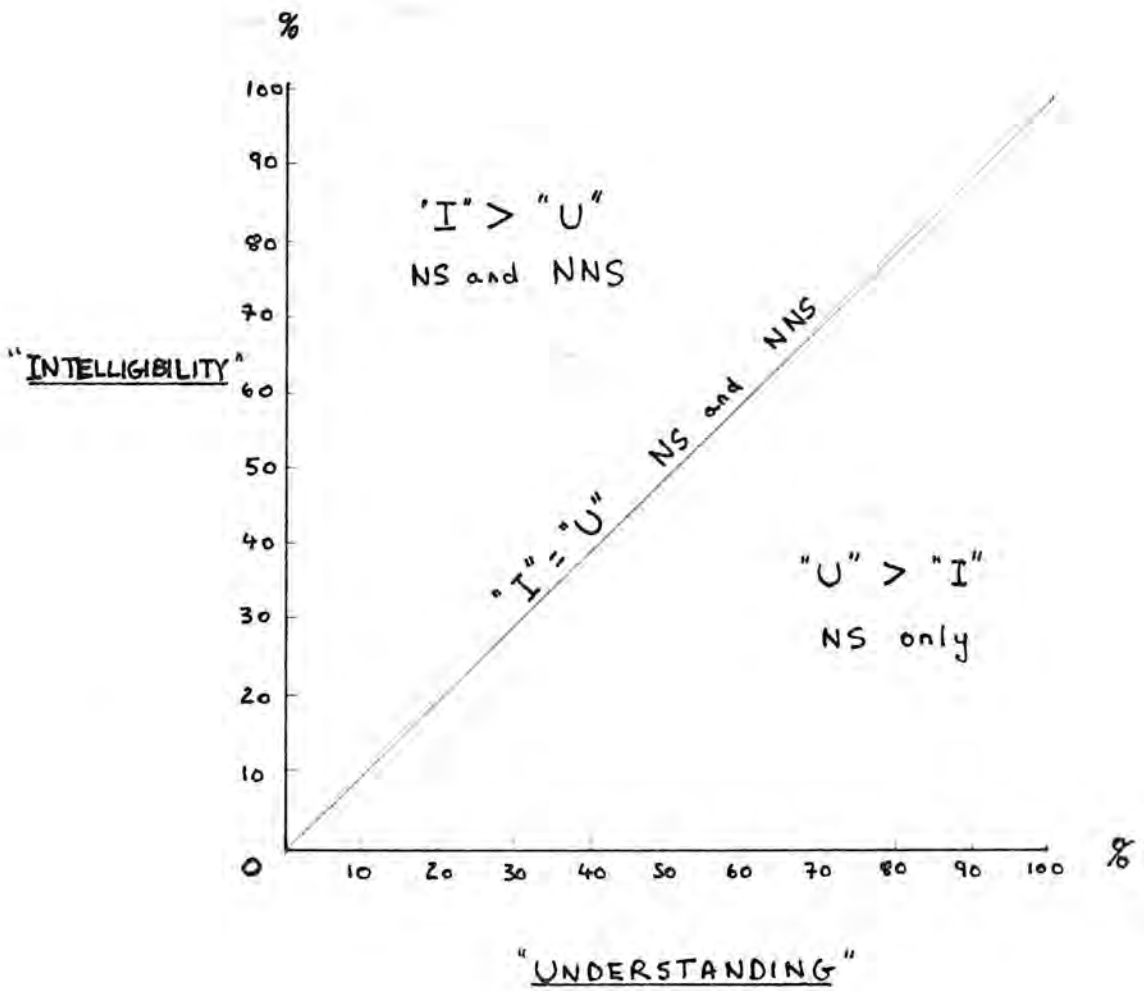
In the following experiment, therefore, we shall consider that listening comprehension can be regarded as being made up of "Intelligibility" (I) (defined as how well the listener can understand the message), and "Understanding"(U) (defined as how well the listener can understand the whole meaning, concepts, arguments or contextual relevance of connected discourse in real time).

Turning to the first concern of the experiment, that is, possible differences in approaches to listening by NS and NNS, it was hypothesized that since learners of a language are far more dependent on literal decoding of a message for an accurate interpretation than NS, who can generate equivalences and synonyms from banks of stored linguistic and cultural knowledge, there is

likely to be a consistent and significant difference in the relationship of "Intelligibility" to "Understanding" between NS and NNS.

Operationally, the problem posed was whether the estimated "Intelligibility" of text and discourse was closer to the estimated "Understanding" of the same text and discourse in the case of NNS than in the case of NS. In graphic form, it was hypothesized that the differences between NS and NNS would manifest themselves in the ways indicated in Figure 5.2, below.

Figure 5.2 Proposed Relationship of "Intelligibility" to "Understanding" in Listening Comprehension of Native Speakers (NS) and Learners (NNS) of English



For the experiment, the following null hypothesis was formulated:

H.1 : Native speakers and learners of English show no significant difference in their comprehension of spoken text and discourse as defined in terms of "Intelligibility" and "Understanding".

With regard to the second part of the experiment, it has been suggested from the findings (albeit tentative) of Experiments 1 and 2, that in listening comprehension, structural, lexical or conceptual difficulty as usually measured (and by which students are currently still graded) may not necessarily be the greatest problem for learners, but that perceptual problems caused by frequency and location of main stress may prove to be equal of even greater sources of listening difficulty. That is, one may 'know' a language very well yet still have problems understanding connected speech at normal speeds on in following films or radio programmes if one cannot tune in perceptually to the stress and rhythm. Conversely, one may be able to operate at the very limits of one's knowledge of a language if one is able to tune in perceptually to the stress and rhythm of that language. Operationally, for the experiment, the above point was turned around so that the problem posed was whether learners of English with no formal training or experience in stress and rhythm in English would be able to follow[19] (if not understand) connected text and discourse if the stress occurred rhythmically at 60 beats per minute more easily than if stress occurred with no specifically regular beat or with repeated changes in the spacing of the stress.

For this part of the experiment, the following null hypothesis was formulated:

H.2 : Learners show no significant difference in their ability to follow connected text and discourse with a regularly spaced 60 beat per minute

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19. "Follow" is used as the verb form equivalent to "to find a message intelligible". "Understand" is used as the verb form equivalent to "to find a whole piece of connected text or discourse understandable".

stress and rhythm and their ability to follow connected text and discourse with authentic or other regular forms of stress and rhythm.

5.4.2 Design

The design of the two parts of the experiment was derived partly from experiments in the field of speech and hearing research on the intelligibility of words and short utterances for the purpose of testing equipment under varying noise conditions, and partly from the findings of pilot experiments and four trial runs of the present design (pilot experiments are reported in Appendix IV). It was felt that current techniques for testing listening comprehension, such as multiple choice, cloze, and dictation would be inappropriate and difficult to design for a group of subjects varying in linguistic competence in English from low level learners to native speakers (and for the reasons concerning contamination stated in 5.4.1), so some other technique was required. In this respect, intelligibility experiments by Speaks et al. (op.cit.) suggest that valid and reliable results on the ability of subjects to follow connected speech can be gained by using 'subjective scaling methods' (ibid. p. 594) in which subjects estimate their ability to understand a proportion of phrases and sentences. While the decision of the listener as to how well a message was followed or understood may appear to be a more valid technique than, for example, post-test questions set by the tester, there would appear to be a need for a more objective and reliable measure, especially in the case of learners of English.[20] For the present experiment, however, and for the purpose of testing the first hypothesis (H.1), we would argue that we are interested in the perceptual reaction of the subjects to the spoken language (that is, how well they think they can follow and understand), rather than in objective and reliable measures of the subjects' comprehension ability, and we are also interested in what this perceptual reaction may tell us about the

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20. Speaks et al. (op.cit.) used sentence repetition as a back-up with comparability of 0.93 with estimates of intelligibility.

different relations existing between native speakers and the language, and learners of English and the language. That is, do learners feel that they are more tied to the actual message or more 'message dependent' than native speakers do, and if so, can we then examine the importance that stress and rhythm play in this so-called message dependency ?

For the second part of the experiment, concerned with H.2 (effect of different stress rhythms), it was felt that since processing perceived speech in real time was an important variable for learners in listening comprehension, the time element should be directly included in the design. In the pilot experiments and trial runs of the present experiment, vocal and sub-vocal shadowing had been found to be practicable and acceptable techniques for both native speakers and learners (with shadowing defined as repetition of the perceived message as it occurs), and, allowing for problems of 'competitive feedback' (Hopkinson, 1967), would be a valid method of testing H.2. It was also thought that while shadowing was not an adequate technique for measuring "Intelligibility" and "Understanding" in itself, precisely because of competitive feedback, it might conceivably provide support for the findings of the subjective estimation technique.

There were four small-scale trials of the design before the fifth version which is reported here. The major findings and changes relevant to the design of the fifth version (the present experiment) were as follows:

i. In trials 1-3, "Intelligibility" was defined as the ability of subjects to follow the recorded text and discourse vocally. It was felt, however, that "Understanding" was being contaminated precisely by the 'competitive feedback' (Hopkinson op.cit.) mentioned above, and "Intelligibility" was therefore re-defined as the ability to follow quietly, sub-vocally or in 'the mind's eye'. Ability to shadow was then tested using the same recorded passages immediately after the estimation tests.

ii. The division of comprehension into "Intelligibility" (I) and "Understanding" (U) was made initially on intuitive grounds. However, when an attempt was made to link them together in the first trial of the estimation technique, it was clear that in the minds of NS subjects, I and U had to be kept as separate and distinct (though related) linguistic realities. The explanation used with both NS and NNS subjects, that 'I' was how well they could follow the language of the message, and 'U' was their ability to grasp the whole meaning of the passage, or the argument or concepts, met with no objections. It was also found in the first trial that a combined I/U scale weighted the experiment in favour of the hypothesis.

iii. The number of passages of text and discourse was increased from six in the first version to ten finally in the present, fifth, version. Not only did this give a better balance of 'regular' and 'authentic' stress patterns (with 'regular' and 'authentic' as defined in Experiment 1), and also a broader range of styles and registers, and linguistic levels, but also enabled texts to be notionally paired (see 5.4.4 Apparatus and Materials, below). As in Experiment 1, it was important that all subjects, irrespective of level of English, should be able to perform the experiment to some extent.

5.4.3 Subjects

There were a total of thirty-two subjects, twenty-seven of whom were active learners of English, and five of whom were native or near native speakers. Thirteen of the subjects were adult Chinese who were language students at the Institute for Applied Language Studies, University of Edinburgh, the remaining fourteen NNS subjects were students of English at the London School of English, Holland Park, London. No attempt was made to grade the subjects for overall or specific language ability, and according to their teachers, they varied from low intermediate to high intermediate levels.

The NS group was made up of an educated Indian English native speaker, a near native speaker research graduate (Arabic mother tongue), two standard Southern English speakers, and one Scottish English speaker.

5.4.4 Materials and Apparatus

Ten recordings of passages were made. The recordings were produced following the procedure used in Experiment 1 (see section 5.2.5). The list of recordings and the stress pacing was as follows:

Recording 1 : SID synthetic speech : University of Edinburgh x 4 repetitions.
Recording 2 : Inspector Reed (Reed 7 of Experiment 1) : regular recording @ 60 beats per minute.
Recording 3 : Bloon 15 : authentic recording.
Recording 4 : Optic 17 : regular recording @ 60 beats per minute.
Recording 5 : Boros 1 : regular recording @ 60 beats per minute.
Recording 6 : Fred : regular recording @ 108 beats per minute.
Recording 7 : Beeb 1 : regular non-NS recording @ 60 beats per minute.
Recording 8 : Beeb 4 : regular NS stress recording @ 60 beats per minute.
Recording 9 : Boros 2 : authentic recording.
Recording 10 : SID synthetic speech recording : The North Wind.[21]

A tapescript of all recordings is given in Appendix II.2. The rationale behind the choice of recordings and the notional pairings of recordings 2 - 9 were as follows:

[Recording 2 : Regular/60 beats per minute; low level structure and vocabulary
[
[Recording 6 : Regular/108 beats (almost word stress beat); low level structure
[
[and vocabulary (both texts from same source).

[Recording 3 : Authentic; dialogue; rapid changes in pacing and spacing of
[
[stress; unfamiliar vocabulary.
[
[Recording 4 : Regular/60 beats per minute; dialogue; rapid changes in spacing
[
[of stress; unfamiliar vocabulary.

[Recording 5 : Regular/60 beats per minute; monologue; complex structure
[and lexis,
[Recording 9 : Authentic; from same work and chapter as Recording 5.

[Recording 7 : Regular but non-NS stress spacing/60 beats per minute; BBC
[news recording.
[Recording 8 : Regular NS stress spacing 60 beats per minute; BBC news
[recording.

The recordings were played to subjects in a Tandberg IS9 LL in both locations. Subjects recorded their 'shadowing' performance onto cassettes in the LL booths, which were subsequently transferred for analysis.

All subjects were given an instruction and grading sheet (see Appendix II.3).

5.4.5 Procedure

All subjects were given an instruction and grading sheet on entry to the LL. The tester (the author) went through the instruction sheet with the subjects and explained further the difference between "Intelligibility" and "Understanding". The example illustration given to all subjects was that they should think of the situation in their own first language when they had listened to someone speaking, and had then responded either with : 'Yes, I followed your language, but I didn't really understand what you were talking about' (with examples such as philosophy, physics, theoretical linguistics) or with : 'Well, you didn't express yourself very well, but I think I see what you mean'. The former they were told to consider as "Intelligibility" (I), and the latter as "Understanding" (U). All subjects appeared to be happy with this division of comprehension, once the examples had been given. They were also shown how to mark their estimated score for I and U. The tape was then played and after each recording it was stopped for subjects to mark their

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21. Rec. 1. & Rec. 10 were included at the request of a member of the Phonetics Department, University of Edinburgh.

estimated I and U scores. The tester went round after the first recording to make sure that all subjects were carrying out the procedure correctly. The sequence continued until all ten recordings had been played. The instructions on 'shadowing' were then carefully explained to the subjects and any questions answered. Subjects were at times hesitant or nervous about this part of the experiment, thinking that it would be far too difficult for them. However, the four trial runs had shown that NNS usually exceeded their expectations of performance and that they settled down quite quickly. The ten recordings were played through the second time without pauses between recordings and students recorded their shadowing on the cassette machines in the LL booths. Grading sheets were collected after the first part, and cassettes after the second part.

5.4.6 Results

H.1 Native speakers and learners of English show no significant difference in their comprehension of spoken text and discourse as defined in terms of "Intelligibility" and "Understanding".

The data from the first part of the experiment, the estimated I and U of recorded passages by NS and NNS subjects,was tabulated as shown in Appendix V.1. Although it was felt that some subjects had consistently over-estimated their I and U scores, this was not taken into consideration when calculating results as only the perception of equal I and U, or higher or lower I to U was calculated. This point has been discussed in 5.5.2 Design. The data was analysed by cases, subjects and materials to ascertain whether there was any significant difference between the overall pattern of NS and NNS estimates of I in relation to U, and whether there were specific differences between passages.

Each pair of I and U estimates for each text and for each subject was treated as a case. There were three possible results for each case, and thus, each case became positive (+), where I was estimated as being greater

than U (I > U), or negative (-), where I was estimated as being lower than U (I < U), or a case of agreement (0), where I was equal to U, according to subjects' estimation (I = U).

H.1.1 Frequencies and percentages of + / - / 0 cases were calculated for NS and NNS groups. It was considered that Recording 10, the synthetic speech recording had served little purpose apart from indicating the poor level of intelligibility of connected synthetic speech and was omitted from the calculation of results. The results for Recordings 1 - 9 were as follows:

Table 5.9 Frequencies of + / - / 0 cases for all cases

All cases (NS and NNS) : 280

Agreement : 123 (43.9%)

+ cases : 117 (41.8%)

- cases : 40 (14.3%)

NS cases : 41

Agreement : 20 (48.7%)

+ cases : 10 (24.3%)

- cases : 11 (26.8%)

NNS cases : 239

Agreement : 103 (43.0%)

+ cases : 106 (44.4%)

- cases : 30 (12.6%)

The frequencies of cases in + / 0 / - conditions for each group were compared using chi squared (x^2).

Table 5.10 Summary of observed and expected frequencies

0	E	$(0 - E)^2$	/E
10	17	49	2.88
11	6	25	4.16
20	18	4	.22
106	99	49	.49
30	35	25	.71
103	105	4	.04

$X^2 = 8.5$ (minimum table value of X^2 with 2 degrees of freedom is 5.99 at the 5% significance level for a one-tailed test : $P < 0.05$ with 2. df)

The result indicates that the distribution of the + / 0 / - conditions for NNS is significantly different from the distribution of those conditions for the NS group. In terms of the experiment, there appears to be a significant difference in estimated comprehension of the passages in terms of "Intelligibility" and "Understanding".

H.1.2 In order to ascertain whether particular recordings were affecting the distribution of conditions for NS and NNS groups, frequencies and percentages for the eight non-synthetic speech recordings were tabulated as in Table 5.11 below:

Table 5.11 Frequencies of + / - / 0 cases by recording

		- (I < U)	0 (I = U)	+ (I > U)
R.2	NS :	2	2	1
	NNS :	4 (14.8%)	12 (44.4%)	11 (40.7%)
R.3	NS :	1	3	1
	NNS :	7 (26.9%)	13 (50%)	6 (23.1%)
R.4	NS :	2	3	0
	NNS :	4 (14.8%)	11 (40.7%	12 (44.4%)
R.5	NS :	1	0	4
	NNS :	2 (7.4%)	3 (11.1%)	22 (81.5%)
R.6	NS :	1	4	0
	NNS :	2 (7.4%)	15 (55.6%)	10 (37%)
R.7	NS :	1	3	1
	NNS :	5 (18.5%)	11 (40.7%)	11 (40.7%)
R.8	NS :	1	3	1
	NNS :	5 (18.5%)	11 (40.7%)	11 (40.7%)
R.9	NS :	0	0	2 (N = 2)
	NNS :	0	6 (25%)	18 (75%) (N = 24)

Those which appeared to be affecting distribution overall were R.3, R.6, R.5, and R.9. The frequencies for these for NNS were compared with the overall NNS results using X^2. NS frequencies by recording were too small to make any calculations valid, and were compared with overall NS scores and with NNS scores only descriptively. The results obtained by comparing the frequencies of cases in the four recordings with overall distribution of cases for NNS were as follows:

R.3 : $X^2 = 9.11$ (i.e. significant at the five percent level with 2 d.f. : $p < 0.05$)

R.6 : $X^2 = 2.05$ (i.e. not significant)

R.5 : $X^2 = 13.78$ (i.e. significant at the five percent level with 2 d.f. : $p < 0.05$)

R.9 : $X^2 = 9.97$ (i.e. significant at the five percent level with 2 d.f. : $p < 0.05$)

The three passages which differed significantly from the total NNS frequency distribution were compared with NS total distribution and NS distribution for specific recordings. As NS figures were so low, statistical comparisons would have been meaningless for specific recordings, however, it seemed to be clearly indicated that the NNS distribution of cases for R.3 closely resembled both total and specific NS distribution, while for both R.5 and R.9 NNS and NS distribution bore close resemblance for the specific recordings, but were both unlike their respective total distributions. This will be considered further in linguistic terms in 5.5.7 Discussion, below.

H.1.3 In order to ascertain whether there were significant differences between relative I and U scores for NS and NNS groups, mean scores for I and U were calculated for each passage for each group, and the difference in I and U scores compared using a paired comparison 't.' test for each group separately.

Table 5.12 't' test of mean estimates of I and U given by NNS

	NNS		
	I	U	difference
R.2 :	53.5	46.5	+ 7
R.3 :	33.3	32.8	+ 0.5
R.4 :	50.9	43.3	+ 7.6
R.5 :	60.6	30.0	+ 30.6
R.6 :	67.8	56.9	+ 10.9
R.7 :	61.5	51.7	+ 9.8
R.8 :	65.0	57.2	+ 7.8
R.9 :	55.8	27.5	+ 28.3

t = 3.8 (t = 2.998 with 7 d.f. 1% significance level for a one-tailed test : $p < 0.01$)

The difference between estimated I and U scores is significant at the one per cent level. U scores are significantly lower than I scores over all passages.

Table 5.13 't' test of mean estimates of I and U given by NS

	NS		
	I	U	difference
R.2 :	88	93	-5
R.3 :	78	81	-3
R.4 :	77	86	-9
R.5 :	92	67	+25
R.6 :	88	92	-4
R.7 :	91	88	-3
R.8 :	94	91	+3
R.9 :	100	42.5	+57.5

t = 0.95 (t = 2.365 with 7 d.f., 5% significance level for a two-test : not significant)

The relation of I scores to U scores over all passages shows no significant bias towards I scores being higher or lower than U scores.

Comparing the two groups, the NNS group has significantly higher I scores than U scores over all recordings, while the NS group shows no significant bias towards I or U.

In terms of the experiment, the results of H.1.1, H.1.2 and H.1.3 show that there are significant differences between NS and NNS with regard to listening comprehension which can be seen as differences in the relative importance of following and understanding the perceived message. While NS appear to be able to operate in all three conditions of I in relation to U : $I > U$, $I = U$ and $I < U$, NNS appear able to operate in only two of those conditions : $I > U$ and $I = U$, and to be significantly better at following the message than at understanding the whole message.

H.1.4 In section 5.4.2 Design, above, it was stated that while 'shadowing' was felt to be an inadequate test of intelligibility, it might, nonetheless produce data which would correlate well enough with the data of the I estimates to provide a measure of support for the findings of the subjective estimation technique as a valid measure of intelligibility for NNS.

The recordings of NNS subjects were marked on tapescripts for each subject and words and phrases correctly and incorrectly shadowed were underlined seperately. From this data, the percentage of words correctly and incorrectly shadowed out of the total number of words was calculated for each text (see Appendix V.2). Both correct and incorrect words were used in the calculation as it was felt that NNS estimates might conceivably have been, in some cases, due to perceptual errors manifested by incorrect shadowing. Two tests of association were carried out using the results of the shadowing test and the results of the subjective estimation test.

i. Firstly, the ranks of the mean percentage scores for Recordings 2 - 9 for the two tests were compared for the NNS group.

Table 5.14 Ranked shadowing scores and estimates of Intelligibility in percentages for NNS group

Rank	Correct Shadow	Correct + Incorrect Shadowing	Intelligibility
1.	Rec. 5 (49%)	Rec. 8 (57%)	Rec. 6 (67.8%)
2.	(8 (48%)	5 (56%)	8 (65.0%)
3.	(9 (48%)	9 (55%)	7 (61.5%)
4.	2 (44%)	2 (53%)	5 (60.6%)
5.	7 (32%)	4 (39%)	9 (55.8%)
6.	4 (30%)	7 (38%)	2 (53.5%)
7.	6 (27%)	6 (32%)	4 (50.9%)
8.	3 (22%)	3 (26%)	3 (33.3%)

Both correct and correct + incorrect shadowing mean ranks of performance were compared with the mean ranks of estimated intelligibility using Kendall's tau test of association. The results were as follows:

In the case of correct shadowing compared with intelligibility

τ = .29 (i.e. not significant)

In the case of correct + incorrect shadowing compared with intelligibility

τ = .52 (i.e. not significant)

In terms of the experiment, the results suggest that subjective estimation and shadowing involve, at least to some extent, different processes, or are strongly affected by different variables, such as competitive feedback and articulation processes in the case of shadowing, and the effort to understand as well as follow in the case of intelligibility. The results also suggest that the low correlation between shadowing performance and subjective estimation cannot be explained simply in terms of incorrect perception of words and phrases using the subjective estimation technique.

ii. Secondly, for each NNS subject, mean shadowing scores as percentages and mean intelligibility scores were ranked and the ranks compared using Kendall's tau test of association. The mean scores and ranks for the two tests were as follows in Table 5.15.

Table 5.15 Kendall tau (τ) comparing ranks for shadowing scores and ranks for estimates of Intelligibility

Subject*	Correct shadowing score	Rank	Intelligibility score	Rank
1	32	5	45.0	7
2	29	4	46.9	8
5	35	8	31.3	3
7	34	7	50.6	10
8	55	19	44.4	6
9	41	15	67.5	12
11	20	1	40	4
12	39	13	21.3	1
13	35	8	72.5	14
14	63	21	69.4	13
15	35	8	28	2
16	58	20	76.3	17
17	25	2	85	21
18	35	8	40	4
19	38	13	77	19
20	36	12	64.4	11
21	45	17	74	15
23	27	3	76.3	17
24	48	18	48	9
25	33	6	75.6	16
32	41	15	79.3	20

* scores omitted where either Shadowing or 'I' score not available.

$\tau = 0.31$ (i.e. not significant)

In terms of the experiment, there is again no significant evidence that for NNS, shadowing is also a valid measure for I as defined in the first part of the experiment.

H.1.5 The reliability of the results of the subjective estimate technique was assessed using the split-half technique. Subjects 1 - 25 and 27 were divided into two groups on the basis of odd and even (27 as an even number) and the frequencies of the three conditions (+ / 0 / -) of cases for each group were compared. The results were as follows:

	+	0	-
Odd number S's :	67	45	11
Even number S's :	38	53	18

The two sets of frequencies were compared using chi squared

$X^2 = 2.33$ ($X^2 \geq 5.99$ with 2 d.f. at the five percent level of significance : Not significant).

In terms of the experiment, there is no significant difference between the distribution of the three conditions in the two sets, and thus the subjective estimation technique would appear to give fairly reliable results, allowing for limited number of subjects used to check reliability.

H.2 Learners show no significant difference in their ability to follow connected text and discourse with a regularly spaced 60 beat per minute stress rhythm and their ability to follow text and discourse with authentic or other regular forms of stress and rhythm

H.2.1 We have suggested that adjusting stress and rhythm patterns may affect positively or negatively subjects' ability to follow connected text and discourse. In section 5.5.4 Materials of this chapter, recorded passages 2 - 9 were informally paired according to criteria of linguistic complexity, formality and type (monologue/dialogue). The pairings were as follows:

R. 2 (regular, 60 beat p.m.) with R. 6 (regular, 108 beats p.m.)

R. 3 (authentic stress) with R. 4 (regular, 60 beat p.m.)

R. 5 (regular 60 beat p.m.) with R. 9 (authentic stress)

R. 7 (irregular, non-NS stress at 60 beats p.m.)
with R. 8 (regular 60 beat p.m.)

The mean percentage shadowing score for all NNS was calculated for each passage and the difference in the scores of each pair of passages was tested for significance using the 't' test :

R. 2 : 44	R. 6 : 27
R. 3 : 22	R. 4 : 30
R. 5 : 49	R. 9 : 48
R. 7 : 32	R. 8 : 48

The results were as follows:

i. comparing all differences:

t = 2.8 ($t \geq 3.2$ at the five per cent level of significance with three d.f.)

From this result, there appears to be no significant difference between the subjects' ability to shadow regular 60 beat per minute stress and other stress and rhythm patterns used in the four pairs.

The data was then re-calculated to test which pairs were significantly different, by omitting each pair in turn from the four pairs.

ii. omitting R. 5 and R. 9:

t = 4.75 ($t \geq 4.3$ at the five per cent significance level with two d.f.)

That is, the result is significant at the 5% level of confidence. The 60 beat per minute stress pattern in R. 5 makes no significant difference to the subjects' ability to shadow the recording when compared to R. 9.

iii. omitting R. 2 and R. 6:

t = 1.9 (i.e. not significant)

That is, the 60 beat regular stress rhythm produces a significantly higher shadowing score than the passage recorded at 108 beats per minute.

iv. omitting R. 7 and R. 8

t = 1.3 (Not Significant)

That is, the regular 60 beat per minute stress pattern produces a significantly higher shadowing score than the irregular non-native speaker 60 beat per minute stress pattern.

v. omitting R. 3 and R. 4

t = 2.13 (Not Significant)

That is, the regular 60 beat per minute stress pattern in conversational dialogue produces a significantly higher shadowing score than dialogue with an authentic stress pattern.

In terms of the experiment, and of the null hypothesis, it appears that the regular 60 beat per minute stress pattern makes a significant difference to shadowing ability only when compared with specific patterns of stress and rhythm and in specific varieties of text and discourse, rather than when compared with all other patterns of stress and rhythm in all varieties.

H.2.2 The reliability of the shadowing technique as a means of measuring subjects' ability to follow spoken text and discourse was assessed using the split-half technique. The twenty subjects (NNS) with the highest number of recordings (those which had also been used in H.1.4 comparing shadowing with subjective estimation) were split into two groups on the basis of odd and even numbers as they were listed for calculations in H.1.4. The mean scores for

each recorded passage for each split group were then calculated and the ranks of the split groups compared with the ranks of the original NNS group, using Kendall's rank correlation coefficient, (τ). The results were as follows:

	Group A (rank)	Group B	NNS group
R. 2	48.3 (6)	47.5 (5)	44 (5)
R. 3	21.6 (1)	21.2 (1)	22 (1)
R. 4	28.8 (3)	32.7 (3)	30 (3)
R. 5	50 (8)	53 (8)	49 (8)
R. 6	26.6 (2)	27.5 (2)	27 (2)
R. 7	29.3 (4)	35.3 (4)	32 (4)
R. 8	45 (5)	50.9 (6)	48 (6)
R. 9	49.6 (7)	52.2 (7)	48 (6)

i. comparing Group A and NNS group:

$\tau = .87$ ($\tau \geq .57$ for N = 8 at the five per cent level of significance : $p < 0.05$)

ii. comparing Group B with NNS group:

$\tau = .98$ ($p < 0.05$)

The rankings of the two split groups correlate significantly with the rankings of the original NNS group, indicating that the shadowing technique does appear to produce reliable results, allowing for the small numbers involved in this test, and the limitations of the split-half technique.

5.4.7 Discussion

The results of the tests concerning each separate hypothesis will be discussed in turn.

H.1.1 : The results of H.1.1 indicate that intelligibility and understanding, as component elements in the overall skill of listening comprehension, are related to one another in significantly different ways in

NS and NNS groups. That is, that native speakers and learners have different approaches to decoding the perceived message. This result may, in some respects, appear trivial, as we would naturally expect native speakers to be different from learners in listening ability. However, the importance of this result is not that native speakers are different from learners as regards level of comprehension, which, in fact, we are not concerned with[18], but in <u>type</u> or <u>manner</u> of comprehension. As we shall argue further in Chapter Six, following, this difference in manner of comprehension can be seen not only in language or in language practice terms, but also in the perceptual terms examined in Experiment 1 (Chapter Five, Part One, section 5.2). The results of H.1.1 suggest that learners of English are, inevitably, far more dependent on the actual message than either full native speakers or the near native speaker, who was included in the NS group. It is unfortunate that the number of near native speakers included in the NS group (1) was too small for us to make any claims about levels of proficiency presupposing native speaker-like perception of stress and rhythm, but if we are to take the point made by Abercrombie (1967) concerning 'phonetic empathy' (see Chapter Four, section 4) seriously, and take the ability to tune in to stress and rhythm patterns as being a condition of NS-like listening, then we may suggest that the case for the inclusion of the near native speaker in the NS group rested to a large extent on his level of 'phonetic empathy' with native speakers.

<u>H.1.2</u> : The results of H.1.2 indicated that three passages differed significantly in distribution of I and U conditions from the overall distribution of the three I and U conditions in the NNS group. The three passages were R. 3 (Bloon), an 'authentic' passage of conversational language, and R. 5 (Boros 1) and R. 9 (Boros 2), the former, a regular 60 beat per minute

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18. See section 5.4.2 of this chapter for the discussion of this point.

monologue, formal and linguistically complex, and the latter, an 'authentic' version of the same type as the first. R. 3 could be described as being at the opposite end of the selection of recorded passages from R. 5 and R. 9 and this is reflected in the difference in frequency distribution of I in relation to U. The perceptual differences between the passages is also shown in the results of H.1.3 for both NS and NNS. Thus, while NNS subjects found the rapid conversational delivery of R. 3, with parenthetical asides, interruption and changes in pacing and spacing of stress, both difficult to follow and difficult to understand, NS found R. 3 marginally easier to understand than to follow. R. 5 and R. 9, on the other hand, both formal monologues presenting two parts of the same theological argument, were found to be relatively easy to follow by both NS and NNS (and to shadow, much to the surprise of several NNS subjects), but, since the argument was so complex and since the argument was based on premises and axioms unfamiliar or unknown to most subjects, virtually impossible to understand for many NNS and also NS subjects.[19]

The result of H.1.3 that "Intelligibility" is significantly higher than "Understanding" for NNS subjects over all passages, but that this is not so for NS reinforces the argument that NNS are more dependent on the actual message for comprehension than NS. From this, it could be suggested that given limited channel capacity for processing speech as heard, dependence on the message could reduce the level of understanding still further. In language learning terms, this places the learner in a difficult position, especially given current approaches to teaching listening comprehension. Either he can concentrate on accurate perception of the message and hope that constant,

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19. The two types of recorded passages, Bloon and Boros, are good examples of the illustration used in 5.4.5 Procedure to illustrate I and U: in the case of Bloon, understanding the passage since the content is fairly simple, while not following so well, since the language is not clearly expressed, and in Boros, following the language while being lost in the argument.

concentrated practice will eventually bring about that change from NNS-like to NS-like listening behaviour, or he can try to grasp the whole meaning or argument without going through the detailed message stage. Since the learner, ipso facto, does not have control or knowledge of the message as a given (that is, his ability to follow cannot be assumed) as does the native speaker, this is a potentially dangerous approach, since the 'feelings of understanding' may be based on no more than an impression gained from a few perceived phrases or words, rather than on a complete message that can be repeated or paraphrased and thus shown to have been understood. Even native speaker, as we have seen in the results of R. 5 and R. 9, may revert to simple following of the message when the complexity of an argument or of the structure of the language requires it. This necessity to follow the message in order to grasp the argument or whole concept, may, in turn, reduce the level of understanding as channel capacity is occupied in real time by the processing of the actual message.

H.1.4 : The absence of significant correlation between the data obtained using the shadowing technique and the subjective estimation technique is a possible indication of different level processes which are being brought to bear on the two approaches to the listening or alternatively of different levels of processing, i.e. high-level/non-articulatory compared with low-level/ articulatory, rather than an implication that one or both of the two techniques lacks validity or provides unreliable data. Given that both techniques appear, on the limited evidence available from H.1.5 and H.2.2 (Reliability tests), to give reliable results, it is possible that both shadowing and subjective estimation may be valid measures of that aspect of listening comprehension concerned with perception of the actual message. As such, in language learning terms, both may have potential value as training or assessment methods in the development of listening comprehension ability in learners. Subjective estimation could be used to develop a high level perceptual awareness of the relationship of form to overall meaning, and

shadowing could be seen as a possible indicator to the learner of his actual performance level.

H.2.1 : Given the notional pairing of recorded passages, the small number of paired passages, and the possibility of other variables, such as change of context or topic (two pairs) distorting results, the significance of the findings that regular 60 beat per minute stress spacing and pacing is significantly better shadowed than certain other forms of spacing and pacing of stress must inevitably be tempered with caution. What the results do suggest,nonetheless, is that while regularising stress may not be of great help to learners in following formal passages of the type frequently found in listening comprehension textbooks, as they have a stress pattern close to regular, it may help with so-called 'authentic' dialogues and conversation such as R. 4. Furthermore, the results also indicate that for listening comprehension, we may need to reassess current methods of grading listening comprehension materials. In this respect, R. 5 and R. 9 (Boros 1 and 2) may seem extremely difficult to follow, yet most NNS found them relatively simple, given sufficient concentration, while a conversation graded as intermediate (Bloon) was difficult both to follow and understand.

The findings with regard to R. 2 and R. 6 support the tentative results of Experiment 2, that word stress or near word stress rhythm may appear at first sight to aid comprehension, since each word is given full or near full value, but when both NS and NNS used the low level strategy of active following (shadowing), the connected value of the words of R. 6 (i.e. the syntax) was lost or distorted. R. 6 (Fred) is, from the point of view of changes in the spacing and pacing of stress, roughly comparable with R. 3 (Bloon) and, from the spacing aspect alone, with R. 7 (Beeb 1), in which the stress occurs at 60 beats per minute, but is irregularly spaced. Both stress pacing (the number of stress beats per minute) and stress spacing (the frequency of occurrence of main stress measured as a ratio of stressed to

unstressed words) appear, from the results, to play an important role in the ability of learners to follow spoken text and discourse using shadowing techniques as a means of measuring performance.

In the following chapter, we shall attempt to apply the findings of this experiment to the development of materials for training in listening comprehension, using both the subjective estimation technique and the shadowing technique.

5.5 Summary of Chapter Five

In this chapter we have reported three experiments. These experiments were concerned with:

Experiment 1 : The perception of 'regularised' and 'authentic' stress by native speakers and by learners of English.

Experiment 2 : The production of perceived stress by learners of English.

Experiment 3 : The ability of native speakers and learners of English to follow, understand and shadow connected text and discourse with varying spacing and pacing of stress.

We have attempted through the series of experiments, firstly, to indicate differences between native speakers and learners with regard to stress perception and approaches to listening, and secondly, to assess the effect of regularising the spacing and pacing of main stress on the perception and production of main stress and on the comprehension of spoken text and discourse in terms of the listeners' ability to follow and understand the perceived message.

We have concluded, albeit tentatively, that native speakers perceive main stress more frequently and more accurately than learners, but that learners' stress perception is greatly aided by regularising the spacing and pacing of main stress. Furthermore, while stress perception differences between native speakers and learners can be regarded as linguistically important, differences in accuracy of stress perception between learners of English are not linked to level of knowledge of English, given current methods of assessing level of language ability in English. We have also concluded that native speakers and learners have different approaches to the comprehension of spoken text and discourse, with learners being far more dependent on the message than native speakers. Lastly, we have suggested that regularising stress spacing and pacing may play an important role in aiding learners to follow informal, conversational varieties of connected discourse, and that consideration should be given, on the basis of the results obtained, to grading recorded passages for listening practice according to the nature of stress spacing and pacing, as well as more usual linguistic criteria.

From the language learning aspect, and that of the training of learners in listening comprehension, three main points emerge:

i. The results indicate that learners may well benefit from a training in stress perception in connected text and discourse.

ii. The results also indicate that such a training may be aided by the use of recorded materials in which stress has been 'regularised'.

iii. A systematic training course in both stress perception and listening comprehension could be devised using graded 'regular' recorded passages of spoken discourse and possibly involving the use of subjective estimation and shadowing as training and testing techniques.

Chapter Six : The design of materials for training in stress perception and production

Chapter Six : The design of materials for training in stress perception and production

6.1 Introduction

6.1.1 In this chapter, we shall be concerned with reporting the development of language learning materials, the aim of which is to train learners of English in the perception and production of word and sentence stress, and also to develop the perception of word and sentence stress in combination with practice in relating the accurately perceived message to overall understanding of spoken discourse.

We shall first discuss current approaches to the development of listening comprehension as exemplified by teaching materials, and then present the rationale and principles underlying the design of the materials presented in this chapter, the form and content of which were indicated by the results of the experiments reported in Chapter Five, preceding. We shall also discuss the relevance of the language laboratory to the principles and to the learning techniques which have been used to exploit the materials. Lastly, we shall present the specific components of the proposed materials and will attempt to relate methods, grading and content to the ideas, insights and results gained from the preceding descriptive and empirical evidence.

6.1.2 Most approaches to the development of listening comprehension in learners attempt to minimise the inhibiting effect of the rapid arrival of forms in sequence from which the listener is expected to grasp meaning and thereby understand. Current approaches (for example, Underwood 1979) have tried to limit the effect of the rapid sequence of forms by concentrating on the meaning and the understanding aspect. As argued in Chapter Five (see 5.5), it is felt that this approach may have misleading consequences for the learner, as the learner is not assumed to have full control or knowledge of the language or stress patterns. This could be regarded as simplification

by topic control or by careful editing of authentic material. More commonly, the design of materials for practice in listening comprehension follows broadly similar lines of simplification to those used in materials for reading, writing and speaking practice, that is, control of content, selected and graded grammatical points, restricted vocabulary, and in the case of listening, reduced speed or elimination of performance errors. The pre-occupation with controlled structure and vocabulary on the one hand, and authenticity and overall understanding through exposure on the other has inevitably meant a lack of interest in the non-linguistic temporal aspects of listening and of potential ways of simplifying them. However, it was indicated in Experiment 1 and Experiment 3 reported in Chapter Five, preceding, firstly, that stress perception can be simplified (that is, made easier) by regularising the occurrence of stress, and secondly, that regularising stress can aid learners' comprehension of certain varieties of spoken discourse, regardless of whether topic, content, structure and vocabulary have been simplified by the usual selection and grading processes.

6.2 Theoretical background to the design of the materials

6.2.1 The forms of the spoken discourse arrive in a syntactically rule-governed order and with a stress pattern set in a rhythm appropriate to the language, and in locations appropriate to the specific discourse (Lehiste 1973, 1977). What, therefore, in the sequence of (possibly) known syntax and lexis inhibits or prevents comprehension by learners ? Brown (1977) has written at length on the problems that the reduction of citation forms and the simplification patterns in informal speech cause for learners' comprehension. In this respect, it was suggested earlier (Chapter Four, section 4.4.3) that the double function of sentence stress may have a paradoxically helping and hindering effect in learners, in that it not only indicates information (given/new, emphatic, contrastive), but also maximises the flow of information

through the weakening or shortening of words or syllables carrying no main sentence stress, and through the increasing of 'distance' between main stresses in utterances with a high ratio of given information compared to new information (for example, parenthetical utterances). In Experiment 1 (Chapter Five, preceding), we saw that learners were failing to locate linguistically important stress accurately, and in Experiment 3 (Chapter Five, preceding) that they were failing to match their perception of the message with the message itself. Since the stress and rhythm pattern of an utterance governs the way in which the syntactic and lexical information is structured in the stream of speech, we would argue that one possible cause of the learner's comprehension difficulty is the mismatching of the stress and rhythm pattern as perceived by the learner with the stress and rhythm pattern of the message itself[1].

6.2.2 Since a key element in the accurate decoding of the message is the accurate location of the main stress (Lehiste 1973, 1977) and its consequent effect on other stress location in the utterance, we may call this a timing problem, that is, the listener must actively perceive and match accurately the stress location in real time[2]. If the learner is, firstly, not aware of this problem, and is therefore directed to the hit or miss, feelings of understanding, or "reasonable interpretation" (Brown 1978) strategies, or secondly, (and consequently) is given no systematic training in accurate active stress perception, it is not surprising that listening comprehension ability frequently lags behind other more 'static'[3] or learner-controlled

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1. This feature can be directly compared with the problem of integration of sound in sound film. If there are no distinct segments of speech which can be 'read' by the light sensitive cell at a fixed rate per second, then the blurring phenomenon of integration occurs. This can be explained as a failure by the speech decoding mechanism to operate at the same rate as that in which the message was originally encoded. That is, the form of the message is in a special real-time code, which must be decoded using the same real-time code or structure as the encoder.

2. Compare this with the tennis analogy, and in particular with Note 7, Chapter Five.

skills, and that the learner lacks confidence in listening at otherwise advanced levels of proficiency. That is, it is not surprising that he or she does not take part in interactional or listening situations (radio, lectures etc.) with the same confident assumptions of language ability that might be held on opening a book, or relating events, or composing a written piece of work. Abercrombie (1967, and also discussed in Chapter Four) has stated that this goal of confident tuning in or 'phonetic empathy' is both rare and difficult for learners to achieve. However, it is a view central to this work that the main cause of the failure and of the consequent attitude is the absence of perceptual training methods, which can overcome the problem of rapid and efficient decoding of spoken discourse in real time.

6.2.3 From the aspect of theories of speech perception, we have already stated in Chapter Four that we consider the active, mediated theories such as the motor theory and analysis-by-synthesis to be useful low-level, developmental models (especially when the prosodic component proposed by Kirakowski (op.cit.) is added), rather than complete and adequate models of the speech perception process. The close connection between following the message and shadowing suggested in Chapter Five, Experiment 3 is an expression of this, perhaps in an extreme and unintended form, while at a higher level, the processes of "Intelligibility" and "Understanding" have clear links with the more complex theory of parallel processing of perceived spoken discourse, without relying on active or sub-vocal articulation. It is felt that by taking the learner through the active, vocal or sub-vocal stages of speech perception, where stress is made explicit and regular, and by insisting on active matching of stress patterns and active shadowing of regularised spoken discourse, the learner will internalize stress-timing both at word

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3. That is, in all these skills the language is under the temporal control of the reader, writer or speaker, while listening is 'dynamic' and the language is not under the control of the listener in temporal terms.

and sentence level and will develop an accurate awareness of the perceptual structure of the message together with increasing lexical and grammatical knowledge (provided in parallel by appropriate courses), and will eventually be able to operate the higher level strategies with less dependency on the actual language of the message.

6.3 Design of Materials

6.3.1 The design of the materials was indicated by the results and insights obtained in the experiments reported in Chapter Five, which, it is felt, identify some problems and paradoxes in the development of listening comprehension, and offer possible learner-related explanations for them, namely:

i. learners have a linguistically significant stress perception and production problem.

ii. learners differ from native speakers in their approach to decoding spoken discourse in terms of degree of dependence on the actual message.

iii. both frequency and rapidity of stress (i.e. spacing and pacing) appear to play significant roles in comprehension for native speakers and learners in certain forms of spoken discourse.

iv. regularising stress spacing and pacing appears to improve both stress perception and comprehension in certain varieties of spoken discourse for learners.

6.3.2 The aims and objectives of the materials were defined as follows:

Aims:

1. to train learners at elementary to upper intermediate levels in the accurate perception and production of word and sentence stress.

2. to reduce message dependency and increase speed and accuracy of understanding of all varieties of spoken discourse.

Objectives:

1. accurate location of word stress in words of two syllables or more.
2. accurate production of word stress.
3. self-instruction and self-correction in the above using implicit and explicit stress beats as markers.
4. awareness of the relation of increased physical/respiratory effort to stress perception and production.
5. accurate location of main stress in regular connected spoken discourse.
6. accurate location of silent stress in regular connected spoken discourse.
7. accurate marking of sense breaks and pauses in regular connected spoken discourse.
8. accurate simultaneous active matching of perceived spoken discourse with objective spoken discourse through stress matching.
9. awareness of relationship of word stress to main stress in connected spoken discourse.
10. awareness of role of greater physical respiratory effort in main stress perception and production.
11. self-instruction and self-correction in the above using implicit and explicit stress beats as markers.
12. accurate shadowing of perceived form of regular connected spoken discourse.
13. self-monitoring and self-correcting ability in 12.
14. awareness of relationship of accuracy of perceived form to understanding of total message.
15. accurate stress matching, shadowing and estimated intelligibility and understanding at different rates of spacing and pacing.

6.3.3 Methods: the aims and objectives were to be met by using specific training methods, some of which had been tried as experimental techniques in the experiments reported in Chapter Five, preceding. These were designed to exploit the specially adapted training materials within the language laboratory. The training methods comprise:

1. Active matching of perceived form with actual objective form at word, utterance, and discourse levels, through stress perception, location and production.

2. Training in self-assessment and self-development of syntactic and semantic decoding through subjective estimation and shadowing techniques.

3. Training in perceptual matching of changes in tempo and rhythm of spoken discourse through acceleration and deceleration of space and pace of regular stress.

4. Self-assessment through partial dictation techniques.

6.3.4 Materials: the materials were intended to form a battery of training and practice sets and units which could be drawn on as appropriate for the particular perceptual level of different students. We have already stated from the results of Experiment 1 (Chapter Five, preceding) that there appears to be no significant link between level of language knowledge as tested and stress perception ability in learners, thus, the materials selected were from a wide variety of styles, linguistic levels and registers, as suggested by the results of Experiment 3 (Chapter Five preceding). Materials were selected from current English language teaching textbooks, or from other sources (e.g. BBC radio and TV) or were written according to needs. The criteria for selection were linguistic (level of language difficulty), functional (e.g. argument, description), situational (in a library, breakfast), and stylistic (e.g. formal lecture, TV announcement, informal dialogue).

An important design principle was the simplicity of the procedure for grading materials. It was considered central to the method that any stretch of spoken discourse could be regularised and thus graded, just as any written materials can be simplified and graded accordingly for reading practice. While the essence of simplification in reading practice is to keep topic, themes and certain essential stylistic devices (irony and suspense for example) unchanged while modifying syntax and vocabulary, in simplification and grading for perceptual training, only the stress and rhythm patterns are simplified through regularisation, while maintaining the stress location of the authentic discourse and so retaining the original meaning given by the syntax + stress interaction.

As stated above, grading of the materials was based on the principle of simplification through regularisation of the main stress spacing and pacing. This means, in practice, controlling the ratio of stressed to unstressed words and the maximum 'distance' between stressed words, and controlling the frequency of stress occurence as measured in stress beats per minute. The validity of these two variables as important factors in listening comprehension was suggested by the results of Experiment 3 (Chapter Five, preceding), where both regularisation of stress frequency and ratio of stressed to unstressed words appeared to enhance learners' comprehension. The grading process, therefore, was largely the product of the two variables (with, it must be said, more usual structural and lexical grading at times), spacing and pacing. Materials were to be graded on five different levels of perceptual difficulty, though there is no reason why, in principle at least, a greater number of more refined levels could not be devised. The five levels were as follows:

Level 1 : Space 2 - 1 (i.e. a stressed word, on average, every other word)

Pace 60 beats per minute.

Thus a passage of spoken discourse of 200 words, would have approximately 100 stresses including silent stresses.

Level 2 : Space 3 - 1 (i.e. a stressed word, on average, every third word)

Pace 60 beats per minute.

Thus a passage of 200 words would have approximately 65 - 70 stresses including silent stresses.

At this point it is important to note that the use of both space and pace as variables enables us to modify a passage of spoken discourse in such a way that it can be spoken within exactly the same time span using either:

faster pace/lower space ratio or

slower pace/higher space ratio

Thus, in a passage of 200 words, for example,

3 - 1 @ 60 beats per minute = 67 seconds

4 - 1 @ 45 beats per minute = 67 seconds

This, naturally, allows for much more sensitive grading, for example, ratios of given to new information could be taken into consideration when adapting a particular passage for a particular group (that is, they may be familiar with the topic) and the spacing and pacing adjusted accordingly. Level 3. reflects this variability and was seen as a transition unit:

Level 3. : Space 3 - 1

Pace 60 beats per minute

and Space 4 - 1

Pace 45 beats per minute

The effect of 4 - 1 at 60 beats per minute is that of very rapid informal conversation, or a garbled lecture unless one is very familiar with the topic, a lower pace was therefore felt to be necessary to the grading.

In Level 4, there is a transition from controlled 4 - 1 ratios with upper limits to maximum distance between stressed words at a faster beat than Level 3 to uncontrolled ratios of stressed to unstressed words at the same 50 beat per minute stress frequency.

Level 4 : Space 4 - 1
Pace 50 beats per minute
and Space uncontrolled
Pace 50 beats per minute

Level 5 contains passages with uncontrolled ratios at 50 and 60 beats per minute together with 'authentic' versions of the same passages.

Level 5 : Space uncontrolled
Pace 50 and 60 beats per minute
and 'authentic' versions of the above (i.e. with no attempt at control over either spacing or pacing)

6.3.5 Equipment : the use of the language laboratory is an essential part of the principles and design of the materials and of the methods for exploiting them. It was hoped that such a perceptual training programme as the one described above would exploit the design facilities and functions of the language laboratory (LL) (see Chapter Three) and would minimise its limitations as a teaching aid. In incorporating the use of the LL in the design of the training programme, consideration was given to exploiting the advantages of the constant real-time model produced by tapes, the individualisation of perceptual training offered by LL booths, the facilities for low-level perceptual training in stress location and shadowing through use of the dual track master/student recordings, and the self-pacing and self-assessment facilities of the LL, together with the possibility of 'clinical' observation of individual problems by the teacher. At the same time, it was felt that the limitations of the LL in being non-critical and non-responsive were minimised

by the active nature of the training procedures and self-assessment procedures which were provided by the LL facilities themselves. That is, the learner was not expected to repeat or respond to a stimulus on the tape, but had to record simultaneously with the master using his own perception of stress location as marked on his tapescript to guide him (c.f. the effect of perceived stress location on production in Experiment 2, Chapter Five). The effect of the controlled stress beat and stressed/unstressed ratios was that accurate matching (i.e. correct timing) of student and master recordings was possible, with consequent ease of self-assessment and self-correction.

6.3.6 Preparation of recordings : recordings were prepared following the same procedure as that described in Experiment 1, Chapter Five, section 5. that is, tapescripts were prepared from authentic recordings and then main stress was marked, including silent stresses. The passages were graded for main stress following the guidelines described in 6.3.4 above. Regular recordings were made following main stress marks, silent stresses and pauses and sense breaks using a regular stress beat produced by a Metrotone®. The recordings were made on two tracks (i.e. the spoken passage or dialogue on one track and the stress beat on the second track), so that perfectly matched recordings with either an implicit or explicit stress beat could then be made for use in the language laboratory.

6.4 Learner levels and teacher ability

A level of language knowledge corresponding to post-beginner/low intermediate would be necessary to start the training battery, as the learner is expected to have some grasp of English word order, some vocabulary and to have been at least introduced to English pronunciation and to sound discrimination. The teacher would be expected to introduce the notion of stress timing and the importance of correct word stress, but no detailed phonological knowledge or proficiency is expected of the teacher beyond that

normally associated with competent English language teaching (i.e. the teacher is not expected to become a trained phonologist in order to be able to exploit these materials and methods fully).

6.5 Components of the perceptual training battery

6.5.1 A full outline of the battery is given in the annex to this chapter (p. 241). A twenty-two hour Test Course is shown with full materials in Appendix VI.1.

The components of the training battery will be discussed under the following six headings:

1. Static Practice
2. Dynamic Practice
3. Intelligibility Assessment
4. 'Shadowing' Assessment
5. Partial Dictation Assessment
6. Test Batteries

These headings cover the types of practice or self-assessment which appear at all levels (or are otherwise indicated). Set and Practice numbers, where given, refer to their place of occurrence in the Test Course (Chapter Seven, following), from which the examples have been taken.

1. Static Practice

4. STRESS ON LISTENING

Set 1. Practice 3.

Set 1.

Practice 3. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

SOMEONE HELLO EASY DIFFERENT ABLE LISTEN CAREFULLY
GOING ABOUT FIFTEEN ANSWERS ALSO WRITTEN PAGES
TWENTY BESIDE AGAIN ONLY IMPORTANT POSSIBLE TWENTY-FIVE
SITUATION

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors and practise again.

Word stress practice is referred to as static since words keep their stress pattern even though they may not be the carriers of main stress in an utterance. Both Experiments 1 and 2 (Chapter Five) had indicated that learners at all levels were weak in perception and production of word stress, and it was felt, therefore, that the basic starting point for training in spoken discourse should be accurate perception of the static stress aspect, especially as word stress in English is frequently a functional marker : to desért / a désert etc.

UNDERLINE STRESS : This technique is used to train learners in perceptual awareness of stress location and also to relate (in the case of word stress) the whole sound of the word including its stress pattern to the form[4].

PRACTISE STRESS: The learner is required to produce the form of the word as perceived. We have already stated at numerous points that we consider perception/articulation to be a useful low-level strategy in a developmental model of listening comprehension. The most important aspect of this technique is that the learner is required to match his perception of the word with its stress to the objective word stress pattern, and then compare the two using the dual track student-master recordings. In this way, the student is responsible for producing his own performance based on the underlined stress on his own tapescript.

CHECK STRESS : Each recording is repeated with the stress beat actually heard on the second recording in order that the learner can check his own stress marking with the original recording and assess his own performance.

B. Dynamic Practice

(see over)

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4. This notion has precedents in the work of Atkinson-King (1973) on the correct perception of words and word stress by children, and also in the work of Lieberman (1967) on stress and intonation 'archetypes'.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

WHEN YOU MEET SOMEONE YOU KNOW YOU SAY HELLO THAT'S EASY WHEN YOU LEAVE YOUR FRIEND YOU SAY SOMETHING DIFFERENT IT'S IMPORTANT TO BE ABLE TO SAY THE RIGHT THING AT THE RIGHT TIME LISTEN CAREFULLY YOU'RE GOING TO HEAR ABOUT FIFTEEN DIFFERENT SITUATIONS AND YOU MUST CHOOSE WHAT TO SAY IN EACH OF THEM YOU'LL HEAR THREE POSSIBLE ANSWERS TO HELP YOU BUT ONLY ONE OF THEM IS RIGHT THESE THREE ANSWERS ARE ALSO WRITTEN DOWN IN YOUR BOOK ON PAGES TWENTY-FIVE AND TWENTY-SIX WHEN YOU HAVE HEARD THE THREE ANSWERS PUT A CROSS BESIDE THE RIGHT ONE THEN LISTEN AGAIN AND YOU'LL HEAR ABOUT THE NEXT SITUATION THERE ARE FIFTEEN SITUATIONS AND YOU'LL HEAR THEM ONLY ONCE HERE IS THE FIRST ONE

(124 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

The practice at utterance/discourse level is referred to as dynamic since main stress can potentially fall on any word in a sentence or utterance depending on its information structure, the performance variables of the speaker, the relation of speaker to hearer, speed of delivery etc. The word dynamic is also used to signify the fact that in this form of practice, the

listener must actively match the perceptual structure of the discourse with his own perception of the discourse structure, if he is to follow and understand in real time.

UNDERLINE STRESS: As Static Practice

PRACTISE STRESS: Learners are expected to read back their own perception of stress location, including silent stresses, in order to 'fix' their own perception and production before comparing them with the objective stress pattern in simultaneous recording.

COMPARE STRESS: As Static Practice, but with the addition of sense breaks and pauses. With regard to intonation, the view stated in Experiment 2, Discussion (Chapter Five Section 5.3), is followed here, namely, that intonation can be regarded as separate and distinct from stress, as indicated by the results of Experiment 2, and dependent on syntactic knowledge. The learner should be encouraged to follow basic rises and falls indicated by sense breaks, pauses, questions, etc.

CHECK STRESS: As Static Practice

The teacher is consulted, if possible, only when the learner has worked through the static and dynamic stages of practice, though, of course, the teacher may intervene at any point.

Both Static and Dynamic Practice are essential training techniques in the battery, and are used in monologue and dialogue form in all units and at all five levels of the battery. Three other techniques are used, but as self-checking and self-testing techniques rather than as training techniques. These techniques are:

3. Intelligibility assessment:

Set 2. Practice 2. (cont'd)

C. Intelligibility Practice Passage B

LISTEN AND FOLLOW: Listen to the following passage and try to decide how well you can follow the language of the passage.

	Words 1-90	Words 91-180
100% : able to follow completely		
75% : able to follow almost completely but with some omissions		
50% : able to follow about half or more but with frequent omissions		
25% : only able to follow occasionally, that is, as a few words and phrases		
0% : barely able to follow. Just an occasional word or phrase.		

Intelligibility assessment is a technique derived from the subjective estimation method used in the first part of Experiment 3, reported in Chapter Five, to assess the relative positions of "Intelligibility" and "Understanding" as components of comprehension by native speakers and learners of English. It was felt that this technique would increase learners' awareness of their ability to follow and understand spoken discourse, and would help to develop a self-critical attitude to their listening performance, especially when combined with the 'shadowing' technique (see below).

4. 'Shadowing' assessment

LISTEN AND SHADOW: Passage B

Listen and say what you hear aloud as you hear it. If you miss a word or phrase, do not stop, but go on until the end. Check your recording with the text.

'Shadowing' assessment is derived from the method used in the second part of Experiment 3 (Chapter Five) to test the effect of different stress patterns on the ability of learners to follow spoken discourse in real time. It was found in PE1 (Appendix IV), Trials 1 - 4 of Experiment 3 and in the second part of Experiment 3 that native speakers and learners of English could perform the skill of 'shadowing' at relatively high speeds, and, to the surprise of many learners, often with near native speaker accuracy. In the battery of materials, it is used as part of the self-responsibility and self-assessment of performance aspect of the training, and is intended to develop an awareness of the importance of perceptual control of message form and structure in the decoding process.

We have already stated that 'shadowing' is regarded as a very low level strategy, since it makes use of active articulation of perceived forms. While the artificiality of the technique does not necessarily make it invalid for training purposes, it was felt that it should perform a testing rather than a training function, and would not only be a useful and valid method by which the learner could check his own performance, but would also provide immediate self-reinforcement.

We have already stated that Static and Dynamic Practice are the basic training techniques used in the perceptual training battery. It should be further emphasised here that with regard to intended time distribution in any single LL session, they should also take up far more time than 'shadowing' or any other self-assessment technique. Thus, in a forty minute LL session, static and dynamic practice should take up three quarters of the time with the remainder being left to the self-testing techniques, and to self-correction such as that shown below:

CHECK SHADOWING : Passage B.

(see over)

CHECK SHADOWING : Passage B

Listen to your recording and underline those parts of the text that you have shadowed correctly with a straight line. Underline those parts incorrectly shadowed with a wavy line, thus  .
Then compare estimate for following with performance for shadowing.

I don't th, I wouldn't do any of the erm, normal th, I mean, I would definitely spend it to fulfil all my fantasies in my remaining years. No doubt about that whatsoever. Er, make sure that I was really happy doing it, and, which means other people doing it as well. Okay, well, not the sort of yacht. I mean the last thing I would want would be a yacht, because that would bring problems like who's going to drive it and where you're going to keep it and so on.//

Erm, so I don't want anything that brings problems like that and, and, not any of the, sort of really Hollywood fantasies, like sunken baths and so on, erm, I would, erm get another house because with that amount of money you could get just the house you, you really wanted. And it would have a basement which wasn't a cellar, if you see the difference and there, there, we, we we could have, erm, I would definitely have a cinema room and buy Hollywood movies. That would be real luxury .....

CHECK SHADOWING: The learner has responsibility for marking and assessing and comparing his performance with his estimate. In the passage given as an example, above, it will be noted that performance features such as hesitation, false starts and repetition have been left in the regularised recording, and only the irregular stress spacing and pacing patterns have been simplified through regularisation.

5. Partial Dictation Assessment

C. LISTEN AND WRITE: The passage has been written out below, but some of the ends of sentences and phrases have been left blank. Complete these as you listen to the passage.

This looks like an ..... look at it examine it take the cap off it has a gold nib write ..... then you'll see that the parker one ..... smoother finer it writes ..... that's because the parker one hundred has a new and revolutionary system which ensures a smooth flow of ink .... the parker one hundred is now in .... try the parker one hundred ..... the parker one hundred .....

CHECK WRITING: Use your knowledge of English to check carefully whether you have included all the unstressed words. You may not be able to hear them clearly, or even hear them at all, but you should include them IF YOU WOULD EXPECT TO HEAR THEM FROM YOUR KNOWLEDGE OF ENGLISH GRAMMAR.

MARK WRITING: When you are satisfied with your performance, turn over to correct your version using the master copy.

LISTEN AND WRITE: This technique can be used in conjunction with the shadowing technique, after learners have become accustomed to the shadowing technique and are producing faster and more accurate performances.

CHECK WRITING: The technique attempts to develop in the listener an awareness of the connection between perceived form and knowledge of grammatical rules. Psychologists, phoneticians and phonologists have reminded us at different times that we hear what we expect to hear within the rules of the language, although in the actual stream of speech there may be omissions and

irregularities. With regard to Experiment 3, for example, those working in synthetic speech were surprised to find that both native speakers and learners found connected synthetic speech as used in the experiment barely intelligible or totally unintelligible. This could be explained at least partially by the fact that those who had actually produced the synthetic speech knew what they were listening to. Thus, in terms of the materials and methods used above, it was considered an important principle that learners should be trained to expect to hear syntactically well-formed utterances, that is, ones which followed the grammatical rules which the learners have acquired, although the utterances might not be perceived as such, initially.

MARK WRITING: As with other forms of practice, the materials are designed to be self-correcting.

6. Test Batteries

Each level has a test battery in which the learner must achieve a high score (85 - 90%) before proceeding to the next level. Testing techniques follow the basic training techniques with some modification and additions. Thus, Level 1 Test Battery (Shown in Appendix VI.1 as Set 1. Test Battery) consists of four sub-tests.

Set 1. Test Battery

(see over)

Set 1. Test Battery

Set 1. Test 1. (five minutes)

1. UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

look at the picture in your book on page eighteen listen and you will hear a man and his wife talking to some visitors about the various rooms in the house each time they talk about a room you must mark the room with the correct number you'll hear a bell before they go into a different room as you can see in your books there are pictures of twelve rooms but you'll only hear a description of six rooms so you must listen and look very carefully before you mark the rooms

2. MARK PAUSES AND BREAKS: Mark silent stresses with ^ and also mark pauses and breaks with full stops and commas.

Test 1. is intended to test dynamic perception of main stress location in connected discourse. The test format and content closely resemble those used in the practice units of Level 1.

Test 2.

Test 2. uses the cloze procedure. In the first part, stressed words have been omitted, and in the second part unstressed words have been omitted. Learners can listen to the recordings as many times as they wish during the five minutes allotted.

Set 1. Test 2. (five minutes)

1. FILL IN MISSING WORDS: Listen to the following passage and fill in the words which are missing in the tapescript below.

..... this ..... you will ..... twenty-five ..... of conversation ..... two students you are ..... to hear about ..... situations and you must ..... what to say in ..... of them ..... the correct statement after ..... andwer in ..... book ..... pages fifteen look ..... your book ..... listen .... instructions ..... hear ..... description twice..... you ..... put ..... circle around ..... letter ..... follows the question

Test 3.

Test 3. has the same subjective estimation format as that used in the first part of Experiment 3. (Chapter Five). The passages used in this test resemble closely those used in practice units (shown in Appendix VI.1, as Set 1., Test Battery KEY), and high (85 - 90%) scores can reasonably be expected.

Set 1. Test 3.

(see over)

Set 1. Test 3.

1. ESTIMATE INTELLIGIBILITY AND UNDERSTANDING: Listen to the following passages and decide how well you can follow each passage and how well you think you can understand them.

100% : able to follow completely

fully understand

75% : able to follow almost completely

less than fully confident understanding

50% : able to follow but with some omissions and difficulties

passage only half understood

25% : frequent omissions and difficulties/poor understanding

0% : barely able to follow/ no understanding

P.1		P.2		P.3	
I	U	I	U	I	U

Test 4.

Test 4. introduces the shadowing technique which is a basic part of perceptual self-testing in Levels 2 - 5. It is used in Test 1. as a second and lower level measure of the learners' ability to follow spoken discourse, after the subjective estimation technique of Test 3.

Set 1. Test Battery (cont'd)

Set. 1. Test 4.

2. FOLLOW OUT LOUD: You will hear the three passages again. This time say what you hear into your microphone as you are hearing it. If you miss something, do not stop. Continue to say what you can hear until the end of the passage.

Tests : Levels 2 - 5

At higher levels, partial dictation techniques are also used, and at Levels 4 and 5, authentic spoken discourse is used in testing, using the above techniques. At Levels 2 - 5, some limited testing of stress production is also carried out, as shown below:

Set 2. Test 4. (fifteen minutes)

(see over)

Set 2. Test 4. (fifteen minutes)

Listen to the beat at the beginning of the recording. Then continue this beat with a pen or pencil. Read the passage below and underline the word or part of a word which you think must be said more loudly or clearly. Then practise reading the passage in the way that you have marked it using the beat to help you. When you are ready, ask your teacher to listen. Remember this is a test and your teacher will mark you for:

1. steady beat
2. good difference between words or part of words which have a beat and those which do not.
3. good position of beats.
4. use of silent beats and control of breathing.

PASSAGE

When you have a post-office box, the postman does not bring letters to you, but you go to the post office and get your letters from your box. The box is locked, and you have the key, so the letters are quite safe. One day, the headmaster of a school wrote to the post office and asked for a post-office box for his school. He soon got an answer. It said, "We will give you a post-box in one month."

Three months later, the headmaster wrote to the post office again and said, "Why haven't we got a post-office box yet ?".

This was the answer from the post office:

Dear Sir,
We gave you a post-office box two months ago and wrote to you then to tell you. Here is the key to your box. You will find our letter to you in it.

While materials and methods are intended primarily for stress perception training and for listening development, the theory and principles underlying the methods link perception and articulation closely as a low level strategy of following connected discourse. It can be reasonably expected that learners' production of main and word stress in connected speech (reading aloud in this case) will also improve, and should be monitored through testing at different levels.

6.6 Summary

We have discussed current approaches to the preparation of listening comprehension materials and notions of simplification for the teaching of listening. We have proposed the principle of perceptual simplification through regularisation and control of spacing and pacing of main stress in connected spoken discourse, and have attempted to apply low level models of speech perception as elements in the development of listening comprehension ability in foreign adult learners of English, using training methods which emphasise the link between perception and production. We have described the design of a perceptual training battery for use in the language laboratory, and have described the aims and objectives of the battery and the methods and materials to be used to achieve the objectives over five levels.

A course of approximately thirty hours duration was devised from the battery and was tested with adult learners of English as a foreign language. The report on this course is given in Chapter Seven following.

Chapter Six (Annex) : Outline of the perceptual training battery

STRESS ON LISTENING

A battery of materials for training in listening comprehension.

Outline of the battery.

LEVEL 1.

Practice 1 - 5 : monologues - all giving instructions on listening (i.e. metalinguistic function).

Practice 6 - 10 : dialogues - all giving instructions in different situations (e.g. directions, library, using the LL).

Perceptual grading

Space : 2 - 1

Pace : 60 beats per minute

Equivalent structural/lexical level

Post-elementary/low intermediate

Tasks

Underline stress (word and discourse levels).

Mark pauses, sense breaks etc. and read tapescript as marked (discourse level).

Produce perceived stress with master recording (word and discourse levels).

Compare own with master recording.

Tests

Cloze testing on stressed words.

Cloze testing on unstressed words.

Underline stress (discourse).

Assessment of intelligibility and understanding.

Shadowing test.

Chapter Six (Annex) (cont'd)

Estimated length of each practice session:

post-elementary/low intermediate : 40 - 45 minutes

remedial (other levels) : 25 - 30 minutes

Text/dialogue length : Text : 75 - 175 words.

Dialogue : 8 - 20 lines.

(N.B. The whole of LEVEL 1. is shown in Appendix VI.1 as Set. 1.)

LEVEL 2.

Practice 1.	- descriptions/states	)
Practice 2.	- narrative/events	)
Practice 3.	- announcements/news/advertisements/etc.	) monologue
Practice 4.	- argument/suasion	)
Practice 5.	- lecture/talk/instruction	)
Practice 6.	- asking questions on people/places/etc.	)
Practice 7.	- asking questions and relating events	)
Practice 8.	- discussing news/programmes/etc.	) dialogue
Practice 9.	- arguing	)
Practice 10.	- questions and answers after lecture/ talk/instruction	)

Perceptual grading

Space : 3 - 1

Pace : 60 beats per minute

Equivalent structural/lexical level

Mixed - low intermediate/intermediate

Chapter Six (Annex) (cont'd)

Tasks

As for LEVEL 1.

Shadowing assessment.

Intelligibility assessment.

Tests

As for LEVEL 1.

Mark appropriate stress and read passage as marked (unguided stress production).

Length

Time : as for LEVEL 1.

Text/dialogue length : Text 150 - 225 words.

Dialogue - 15 lines - 30 lines.

LEVEL 3.

Practice 1 - 10 : As LEVEL 2. Some interactions with three speakers.

Perceptual grading.

Space 3 - 1 and Space 4 - 1

Pace 60 beats per minute Pace 45 beats per minute

Equivalent structural/lexical level

Mixed - mainly intermediate with some higher intermediate.

Tasks

As for LEVEL 1 and LEVEL 2.

Partial dictation assessment.

Chapter Six (Annex) (cont'd)

Tests

As for LEVEL 1 and LEVEL 2.

Length

Time : 45 - 50 minutes per practice unit, approximately, depending on level of learners' perceptual ability.

Text/dialogue length : Text - 200 + words.

Dialogue - 20 + lines.

LEVEL 4.

Practice 1 - 10 : As LEVEL 2. Some interactions with three or more speakers.

Perceptual grading.

Space 4 - 1 and Space uncontrolled

Pace 50 beats per minute Pace 50 beats per minute

Equivalent structural/lexical level

Mixed - mainly intermediate/upper intermediate.

Tasks

As for LEVEL 3.

Compare controlled and uncontrolled spacing.

Shadow and compare controlled and uncontrolled spacing.

Tests

As for LEVEL 3.

Comparison of controlled and uncontrolled spacing in cloze and subjective estimation and shadowing tests.

Chapter Six (Annex) (cont'd)

Length

Time : Variable 40 - 50 minutes approximately depending on learners' level of perceptual ability and language level.

Text/dialogue length : Text : 200 + words

Dialogue : 20 + lines

LEVEL 5.

Practice 1 - 10 : "Authentic" and "regular" recordings paired. Dialogues with "authentic" and "regular" stress patterns according to speaker.

Perceptual grading.

Space uncontrolled

Pace 50 and 60 beats per minute

"Authentic" recordings

and

Equivalent structural/lexical level

Very mixed - intermediate to advanced.

Tasks

As for LEVEL 3.

Compare 'regular' and 'authentic' recordings.

Shadow and compare 'regular' and 'authentic' recordings.

Tests

As for LEVEL 3.

Comparison of 'regular' and 'authentic' stress pacing in cloze, subjective estimation and shadowing tests.

Chapter Six (Annex) (cont'd)

Length

Time : Variable as LEVEL 4.

Text/dialogue length : Text - 250 + words

Dialogue - 25 + lines

Chapter Seven The effect of a course of materials for training in stress perception and production on the listening comprehension ability of adult learners of English. A report on a comparative study

Chapter Seven The effect of a course of materials for training in stress perception and production on the listening comprehension ability of adult learners of English. A report on a comparative study

7.1 Introduction

The design of the course (properly referred to as 'Stress on Listening' and shown in Appendix VI.1) and the principles and techniques were described in Chapter Six, preceding. The course was devised from the battery of materials given in outline in Chapter Six, and was presented to a group of adult learners of English as a foreign language as a coherent course. The aims of the course were two-fold: firstly, to assess to what extent the learners were able to handle the materials and training techniques which had designed to exploit the language laboratory facilities for self-instruction and self-assessment, and secondly, to assess whether the use of such materials and techniques in the LL would speed up the learners' development of listening comprehension ability, or, conversely, would improve the learners' speed and accuracy of listening comprehension as measured by ability to follow and understand spoken discourse.

It was hypothesized that, given two groups of learners, the group that took part in the course would be able to follow and understand spoken discourse at the end of the course significantly better than the group that did not follow the course, as measured by common pre- and post-course tests of listening comprehension ability. In null form, this becomes:

> There will be no significant difference in the development of listening comprehension performance in two groups of learners, one following a course in stress perception and production, the other not, as measured by pre-course and post-course tests of their ability to follow and understand spoken discourse.

7.2 Design of the course

The course consisted of the following components:

1. pre-course listening comprehension test (see Appendix VI.2).
2. the course : 'Stress on Listening' (see Appendix VI.1).
3. post-course listening comprehension test (as pre-course test).

The pre- and post-course tests were given to an Instruction Group and to a Control Group. Both groups continued their normal English language courses for 5½ weeks after the pre-course test, and then took the post-course test. The Test Group followed the stress training course in addition during the 5½ weeks intervening.

The 'Stress on Listening' course was offered as an optional supplementary course lasting six weeks. It was originally intended that the course should be of twenty-eight hours duration plus two hours for pre- and post-tests at the beginning and end of the course. In the event, the author showed himself to be somewhat naïve in this respect and the format of the presentation for materials in Level 2 (see Chapter Six) was necessarily changed to accommodate subject attendance patterns, and the lower number of course hours that were held (20 + 2 hours for tests).

7.3 Subjects

The course was held at Stevenson College of Further Education, Edinburgh. Twenty subjects attended the first testing and introduction session, when they were given the pre-test. The Instruction Group subjects were aged from 16 to 30 years of age and varied in English ability from low intermediate to Cambridge FCE standard, as measured by the College English language placement tests of grammatical and lexical knowledge + short interview[1].

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1. Nelson Quickcheck Tests (Fowler & Coe, 1978) are used in the college as entry and grading tests. Pre-course test scores for all subjects and Nelson Test scores are given in Appendix VI.4).

Lowest and highest ability students at the College were excluded from the course, in the case of the highest levels primarily because of LL capacity, and in the case of lowest levels because the materials had not been designed for beginners or elementary students. All Instruction and Control Group subjects attended English courses at the College varying from 10 hours per week to 17 hours per week.

The subjects for the Control Group came from the same normal classes as those who had chosen to take the 'Stress on Listening' course. These subjects took only the pre-course and post-course tests. It was not possible to select subjects by pairing or by randomizing the choice of subjects, and given that those who opted for the extra course may have been the keenest students or the weakest at listening (and therefore, those with most to gain), this is a possible weakness through bias in the design of the study. However, there are two points to be made in this respect: firstly, the question posed in this study is whether the materials and techniques for training in stress perception and production can both exploit the LL in terms of learner utilization and can also enhance listening comprehension performance, not whether they are 'better' than notionally equivalent materials. Secondly, even if it had been possible to select or devise such equivalent materials, it would still have been impossible to have established a Control Group to follow a parallel course within the College.

7.4 Timing and Frequency

The course was held in one (occasionally two) LL at Stevenson College between 4.45 and 5.45 pm daily, Monday to Friday from 10th November to 17th December, 1980. It was hoped that some twenty-eight hours could be covered in the six weeks that the course lasted. However, few subjects ever came on Fridays and a number of subjects did not attend regularly because their own

College timetables made attendance at the course inconvenient. As with any training course, regularity of attendance was an important factor in gaining full benefit. The time of day allocated to the course was also unfortunate as subjects were frequently tired or lacked concentration. It was a great surprise to the regular teaching staff of Stevenson College that more than half the original Instruction Group was still attending a voluntary course held late in the afternoon at the end of the six weeks.

7.5 Equipment and Materials

7.5.1 Equipment

The course was held in two language laboratories. Both LL's were old (eight years), unreliable and in urgent need of replacement. Both had reel-to-reel student decks which gave constant problems. Sound quality was just adequate. Approximately 25% of any training session was taken up with technical problems, and it was fortunate that the author had a limited knowledge of LL problems and of how to rectify them, or considerably more time, even whole sessions, would have been lost. Subjects were usually able to spend a full 40-45 minutes of each session on the training materials. The second LL was used, firstly, as a back-up to the first LL, and later in the course as the only LL available. Both LL's had full audio-active-comparative facilities, but monitoring and intercom. facilities in the first LL were limited.

7.5.2 Materials

i. Pre-/Post-course tests: The test is shown (in completed form) in Appendix VI.2. There were a total of sixty nine items in twelve groups (phrases or clauses) counting each word as an item. It was felt (after Oller, 1979, and Johansson, 1975) that the use of the word as an item gave a much wider

range of variability and much better indication of degree of overall comprehension than an approach such as that favoured by Politzer et al. (1974), where only completely correct groups would have been counted as correct. This latter approach would have given only twelve items and little true indication of comprehension since there would be a strong likelihood of many low scores caused by minor errors which could be classed as mistakes (to use Corder's (1967 : 167) term for performance errors).

The test format and scoring arrangements were inevitably a compromise between economy, reliability and validity. It was important that the test should take only a short time to administer to Control Group subjects, as this had to be done during normal class time and minimum disruption was essential, and that it should have a relatively simple format and should be simple to complete. The test also had to discriminate between a wide range of student abilities and to function as a valid measure of comparative progress of subjects' after the training course.

The content of the test was chosen as it contained a wide variety of voices and registers speaking at different paces within a short time[2]. With regard to validity of the test, there were two separate influences on the design of the test. Firstly, it was considered that the partial dictation technique would be a valid method of testing not only ability to follow but also to understand spoken discourse, since even small errors or omissions (e.g. a 'not') in following were likely to affect the cumulative process of understanding. (See Chapter Four for a discussion of the use of partial dictation techniques). Furthermore, as the principles of self-assessment and accurate perception of the message were underlying the whole training course, it may well have seemed contrary to the principles of the training and assessment methods

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2. The test content is taken from the marketing tape for 'Listeners', a series of listening comprehension practice materials. The marketing and continuity parts of the tape have been carefully prepared, while the publishers claim authenticity for the interview extracts that are heard as part of the tape. (Listeners, OUP, 1980).

for the tester to have set open-ended or multiple-choice questions on the recorded passage as valid indicators of comprehension, especially when such testing methods had already been rejected as a testing method in Experiment 3, in Chapter Five, above. The construction of the test followed the procedure described as Alternative I by Johansson (op.cit. : 129) in that a recording (see Note 2.) was used as a starting-point, followed by a written version of the recording. Twelve portions at the end of sentences were left out in the student answer sheet, and finally pauses were inserted in the recording for each missing portion of the text.

ii. 'Stress on Listening' course : The course is shown in Appendix VI.1. It will be noted that Set 2 differs in arrangement of practice units from Level 2 as described in Chapter Six. This was changed for operational reasons, when it became clear that subjects were not going to have anything like twenty-eight hours of training. It was felt that the monologues and dialogues that were separate in Level 2 practice units should be combined in longer practice units with subjective estimation and shadowing assessment/partial dictation at the end of each longer unit. This had the effect of increasing the training time in proportion to the assessment time and of allowing subjects longer uninterrupted time on each theme or discourse type.

7.6 Procedure

7.6.1 Pre-course test : Instruction and Control Group subjects were tested separately, the Test Group during the first session of the course, and the Control Group during their class sessions when convenient during the first two days of the course. The test took approximately fifteen minutes to administer to each group or set of subjects.

7.6.2 'Stress on Listening' course : Subjects were required to attend every session of the course as an initial condition of taking the course. From the

attendance figures shown in Appendix VI.3, it will be noted that while approximately half the subjects attended regularly, some stopped attending early in the course, and others attended only intermittently. One subject stopped attending after the first test at the end of Set 1, and the introduction of self-assessment and shadowing techniques.

The first session of the course was taken up with explaining aims and objectives, an introduction to the notion of stress timing similar to the one given to subjects before Experiment 1, Chapter Five, a description of basic training procedures used in Set 1 (see Appendix VI.1), and the pre-course test. Training techniques were given further explanation and exemplification to individual subjects or to the whole group as and when necessary. Other techniques, that is, subjective assessment, shadowing, partial dictation, were presented to the whole group when indicated by the materials. For the great majority of sessions, subjects would arrive to find pre-recorded practice units and would work through the units, asking questions and having their work and performance checked by the author when required. Level of grammatical and lexical knowledge was such that almost all subjects understood fully what they were seeing on the tapescripts until well into Set 2, and occasional difficulties were resolved either by reference to a dictionary or to the author. (See also 7.8 for a fuller discussion of this point and the implications).

Reports were kept on a day-to-day basis of subjects' performance as observed and on insights gained through observation. These 'clinical observations' came to be an important aspect of the course, and are presented as part of the results of the course (see 7.8, below).

7.6.3 Post-course test : Instruction and Control Group subjects were re-tested using the same pre-course test during the last week of the course. It had

been the intention to test all subjects on the last day of the course (the Friday), but that was impossible, and as Cambridge examinations were being held on the Thursday, the tests had to be given on the Wednesday, after which, subjects came only to find out their results. In this way, still more hours originally planned were lost.

7.7 Results

7.7.1 Scoring procedures for pre- and post-course tests.

The pre- and post-course tests were scored in the following way (after Johansson, op.cit.). A subject received a point for each word in the correct sequence. No points were subtracted for words that were mis-spelled but still clearly recognisable as the correct word. Examples of acceptable and unacceptable spellings were:

i. acceptable: interupted; dinning-room; els (for 'else'); naturaly; anythink.

ii. unacceptable: nationally (for 'naturally'); tooking (for 'talking'); grand (for 'ground').

Each subject was marked out of total of sixty-nine.

7.7.2 Control and Instruction Groups

Although twenty subjects took the pre-course test as Instruction Group subjects, only twelve of these were present for the post-course test. Similarly, while twenty-five subjects were tested as the Control Group with the pre-course test, only sixteen took the post-course test. Of these sixteen, four were omitted from the Control Group when calculating results. These subjects had pre-course test scores of 13, 56, 61, 64 out of 69, and post-course test scores of 19, 51, 57, 57 out of 69, respectively. These subjects

were omitted because it was felt that the range of scores for Instruction and Control Groups should correspond, and in the case of the high scores, this would have given rather a large proportion of high scores compared to the distribution of other scores. The inclusion of the high scores would have also biased the results in favour of the Test Group, as the three subjects omitted have lower post-course test scores than pre-course test scores. The low score (16) increased by only 0.5 more than the average score increase for the Control Group (see below).

7.7.3 Pre-course and post-course test scores were as follows for Instruction and Control groups:

Table 6.1 Pre- and Post-Test scores for all Subjects

Instruction Group			Control Group		
	Pre-course	Post-course		Pre-course	Post-course
S.1	17/69	29	S.13	17/69	27
S.2	19	22	S.14	21	39
S.3	25	30	S.15	23	23
S.4	31	41	S.16	26	26
S.5	35	41	S.17	29	33
S.6	37	46	S.18	35	36
S.7	37	55	S.19	42	50
S.8	39	49	S.20	42	51
S.9	40	40	S.21	43	43
S.10	44	46	S.22	44	53
S.11	44	54	S.23	45	38
S.12	51	59	S.24	49	63
	$\Sigma x_1=419$	$\Sigma x_2=512$		$\Sigma y_1=416$	$\Sigma y_2=482$

7.7.3 i. Descriptive statistics

1. All subjects: pre-course test (n = 24)

mean : $\frac{419 + 416}{24} = \underline{\underline{34.8}}$ score range : 17 - 51

median = 37

Facility value : $\frac{835 \times 100}{24 \times 69}$

= 50.42%

standard deviation :

S.D. = 10.4

2. Instruction group : pre-course test and post-course test (n = 12)

pre-course test :	post-course test :
mean : $\bar{x}_1$ = 34.9	mean : $\bar{x}_2$ = 42.7
median = 37	median = 43.5

% increase post-course test over pre-course test : 22.2%

Facility value : 50.6%	Facility value : 61.8%

Standard deviation : pre-course test : 11.2

: post-course test: 11.3

3. Control Group : pre-course test and post-course test (n = 12)

pre-course test :	post-course test :
mean : $\bar{y}_1$ = 34.7	mean : $\bar{y}_2$ = 40.2
median : 38.5	median : 38.5

% increase post-course test over pre-course test : 15.9%

Facility value : 50.2%	Facility value : 58.2%

Standard deviation : pre-course test : 12.3

: post-course test: 12.25

The test provided a wide score range for both Instruction and Control Groups (17 - 51 and 17 - 49). It was one of the criteria of the test that it should discriminate between subjects with a wide ability range in English, and this range was felt to be adequate for the language levels represented in both groups. The lower scores are, in fact, probably approaching the lower limit for the training materials to be fully useful, as it has already been stated that it is thought that they are not appropriate in their present form

for beginners. While there is some bunching around the pre-course test mean in the Instruction Group, and in the lower forties in the Control Group, the scores are, on the whole, well distributed over the score range, as indicated by the standard deviation scores. The pre- and post-course S.D. scores for both Instruction and Control Group remain stable, indicating the general overall improvement which is uniform across the range of scores from pre- to post-course tests.

The lower median than the mean in the Control Group post-course test results indicates that there are more scores below the mean than above it. The converse is the case in the pre-course medians and means for Instruction and Control Groups and in the post-course median and mean for the Instruction Group. With such a small sample in the Control Group, this is probably caused by one subject, S. 23, achieving a lower score (and lower than both mean and median) on the post-course test than on the pre-course test. No simple explanation can be offered for the subject's lower post-course test score. He continued to attend classes and appeared (as all students did) to take the post-course test seriously.

7.7.3 ii. Correlations and intra- and inter-group comparisons

1. Internal reliability of test

The reliability of the test as a whole was assessed using the 'split-half' technique. The results for all subjects were ranked, then divided into odd and even scores, then each half was re-scored. Details are given in Appendix VI.5.

$$r_{\frac{1}{2}\frac{1}{2}} = 1 - \frac{6d^2}{n(n^2-1)}$$

$$= 1 - 0.23$$

$$= \underline{0.77}$$

This figure was then boosted using the Spearman-Brown formula to give an estimate of the 'true' reliability of the test.

$$r_{11} = \frac{2r_{\frac{1}{2}\frac{1}{2}}}{1 + r_{\frac{1}{2}\frac{1}{2}}}$$

$$= \frac{1.54}{1.77}$$

$$= \underline{\underline{0.87}}$$

While this is short of a professionally acceptable standard of reliability for language tests, considering the need for economy, ease of administration, need for wide score range and for adequate discrimination over a wide range of language ability, this is a satisfactory result and suggests that the majority of items are working in the same way.[3]

2. Comparisons between pre-course and post-course test results for Instruction and Control Groups.

1. Intra-group comparisons.

Comparisons between subject scores for pre- and post-course tests were calculated using the t test in order to ascertain whether subjects in the Instruction and Control Groups had increased their scores significantly from pre-course to post-course test performance.

Instruction Group : $t = 5.46$ ($t \geq 3.11$ with 11 df at the one per cent level of significance for a two-tailed test : $p < 0.01$)

Control Group : $t = 2.70$ ($t \geq 2.201$ with 11 df at the five per cent level of significance for a two-tailed test : $p < 0.05$)

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3. Davies (in Allen & Davies, 1977) has noted that high reliability is a frequent feature of tests using the cloze or dictation techniques.

In terms of the test results for both groups, while the increase in the Instruction Group scores is highly significant, the increase in the scores of the Control Group is only significant.

3. Inter-group comparisons.

i. t test (independent subject design) : the above test for repeated measures indicates that both groups increased their scores significantly from pre-course test to post-course test, and that the Instruction Group increased its scores overall by more than the Control Group. This difference in the increase of Instruction and Control Group post-course test scores was tested using the t test. (Full results are given in Appendix VI.7.)

$t = 0.52$ ($t \geq 2.074$ with 22 df at the five per cent level of significance for a two-tailed test : Not Significant).

In terms of the pre- and post-test results, the t test indicates that while the Instruction Group may have increased its post-course test scores by a higher margin than the Control Group, the difference in the increase in scores is not significant.

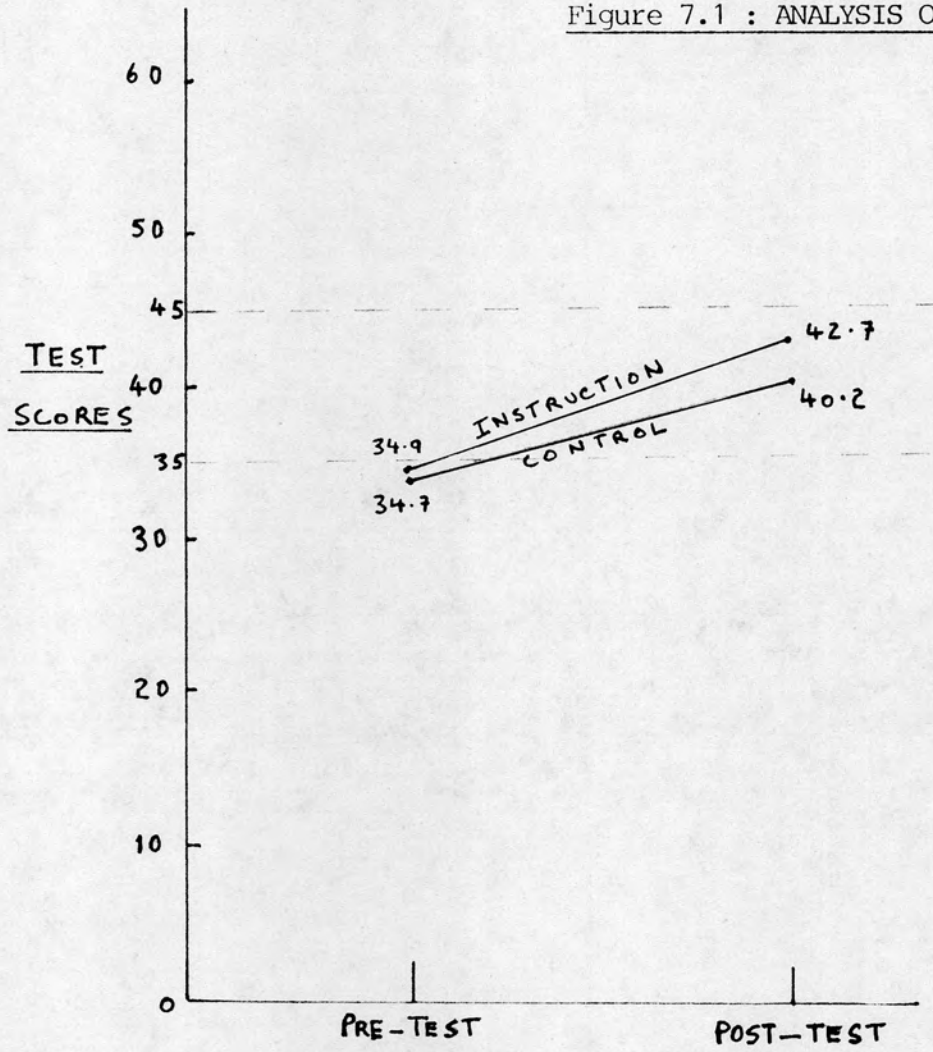
ii. Analysis of Variance : the test scores were subjected to analysis of variance (Bio-medical Data Package, UCLA Health Services Computing Facility, 1979) by subjects with subject group (Instruction and Control) and test condition (pre- and post-test) as factors. The results are shown in Table 6.2.1. The main effects of subject group was not significant ($F = 0.1$ df 1, 22, $p = 0.7$). The main effect of test condition was highly significant ($F = 28.43$ df 1,22, $p < 0.0001$). The interaction of subject and test condition was not significant ($F = 0.82$ df 1,11, $p = 0.37$). As Figure 7.1 shows, Instruction and Control group subjects improve their performance almost equally between pre- and post-test conditions.

TABLE 6.2 ANALYSIS OF VARIANCE - SUMMARY TABLES

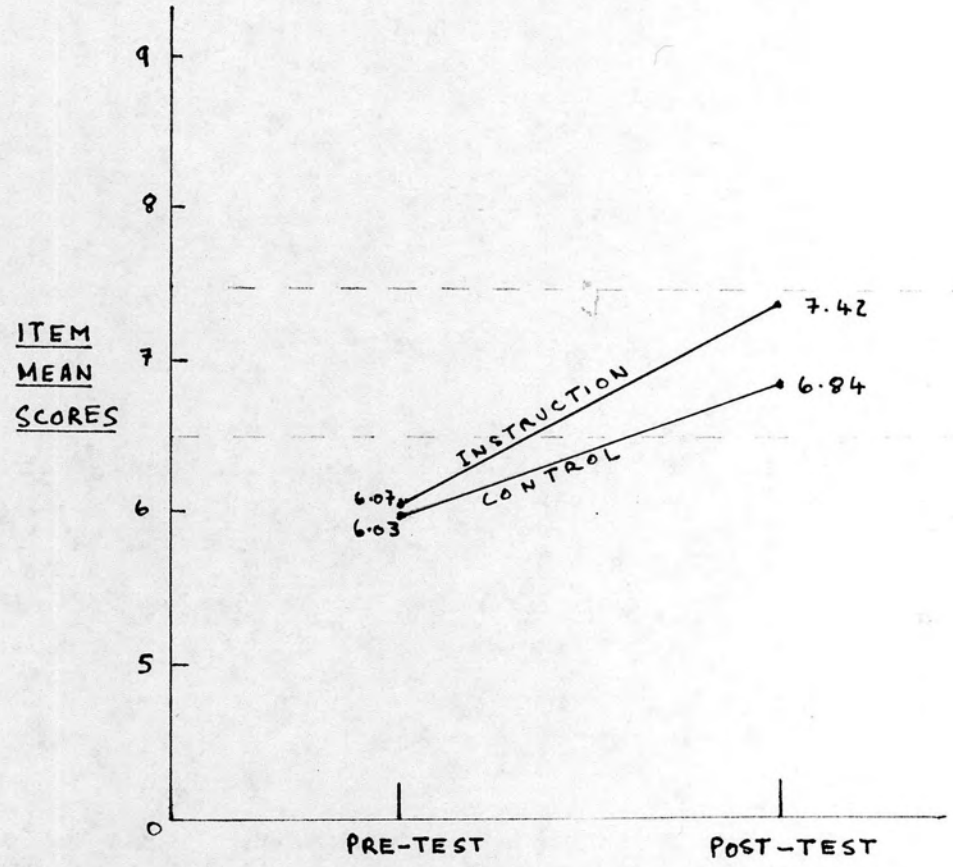
6.2.1 RESULTS BY SUBJECTS

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	PROB.
1. Mean	69692.521	1	69692.521	299.33	0.0000
2. Instr./Control Groups Overall	22.687	1	22.687	0.10	0.7579
3. Pre-/Post-Test Condition overall	526.687	1	526.687	28.43	0.0000
4. Subjects Within Groups	5122.292	22	232.831		
5. Instr./Control Group Scores x Pre-/Post-Tests	15.187	1	15.187	0.82	0.3751 (N.S.)
6. Subject x Test Within Groups	407.625	22	18.528		

Figure 7.1 : ANALYSIS OF VARIANCE



7.1.1. INTERACTION OF INSTRUCTION AND CONTROL GROUP SCORES WITH PRE- AND POST-TESTS



7.1.2. INTERACTION OF INSTRUCTION AND CONTROL GROUP ITEM SCORES WITH PRE- AND POST-COURSE TESTS

TABLE 6.2 ANALYSIS OF VARIANCE - SUMMARY TABLES

6.2.2 RESULTS BY MATERIALS

SOURCE	SUM OF SQUARES	D.F.	MEAN SQUARE	F	PROB.
1. Mean of items	11988.2645	1	11988.2645	281.64	0.0000
2. Items Within Groups	2894.4855	68	42.5660		
3. Instr./Control Groups Overall	6.6993	1	6.6993	2.63	0.1093
4. Pre-/Post-Test Condition Overall	80.4384	1	80.4384	58.62	0.0000
5. Items Within Groups	173.0507	68	2.5449		
6. Items Within Tests	93.3116	68	1.3722		
7. Instr./Control Group x item means Pre-/Post-Tests	4.9601	1	4.9601	3.67	0.0595 (N.S.)
8. Item by Group with Tests	91.7899	68	1.3499		

Mean item scores over all subjects were also subjected to a similar analysis of variance as the above by materials with subject group (Instruction and Control) and test conditions (pre- and post-test) as factors. The results are shown in Table 6.2.2. The main effects of subject group was not significant ($F = 2.63$ df 1, 68, $p = 0.11$). The main effect of the test condition was highly significant ($F = 58.62$ df 1, 68, $p = < 0.0001$). The interaction of subject and test condition approaches but does not reach significance. As the graph (Figure 7.1) shows, there is very little difference between Instruction and Control groups overall, and both groups increase item mean scores almost equally from pre- to post-test condition.

With regard to the null hypothesis:

> There will be no significant difference in the development of listening comprehension performance in the two groups of learners, one following a course in stress perception and production, the other not, as measured by pre-course and post-course tests of their ability to follow and understand spoken discourse.

The results do not permit us to claim that we have falsified the above null hypothesis, that is, both groups increased their scores to a significant degree from pre-course test to post-course test, and while the Instruction Group increased its scores more than the Control Group, this increase was not significant.

7.8 Discussion

While there is no significant difference between the increase in the Instruction Group scores and those of the Control Group, there is nonetheless a degree of difference in favour of the Instruction Group throughout the calculation, especially by materials, which, we would argue, has been brought about largely by the use of the independent variable, the training course.

At this point, however, it is worth remembering that the very fact that the Control Group received no special attention while the Instruction Group did raises the problem mentioned above in 7.3, namely, to what extent can the Control Group truly be called a Control Group ? Since the Instruction Group received special attention, while the Control Group received none, the result might be regarded simply in terms of the 'halo' effect. This is obviously a problem in any experimental educational research of this type, especially as even when a Control Group receives some form of parallel training, questions of equivalence may arise (e.g. Savignon, 1972, discussed in Chapter Two of this present work). The presence of such problems inevitably makes strong claims weaker, while not necessarily negating the empirical evidence presented to support claims.

We have also not taken into account other factors which might have distorted the results, such as normal class teaching time spent on listening comprehension practice, or normal class attendance patterns by subjects in both groups. It may be argued that voluntary attendance at a course indicates in itself a greater interest in learning the target language, or at least indicates a consciousness of one's language weaknesses and a desire to eliminate them. Far from this point weakening the strength of the claim that the materials and techniques were a major factor in the enhanced performance of the Instruction Group subjects, it may in fact make it stronger, since it must increase the face validity of the course, for students if not for (sceptical) teachers. Put another way, the majority of volunteer students continued to attend LL sessions at an inconvenient time, using materials and techniques the form and presentation of which was unfamiliar, which were disciplined and essentially non-communicative, for an hour a day for six weeks, and indeed would have continued longer if the course had not been forced to end with the end of term. That the materials and techniques motivated subjects to listen more intently and to monitor and assess their own performances will be clear from the reports and observations kept, the summary of which follows in 7.9,

and this increased attention is perhaps also indicated by the higher increase in post-course test scores for the Instruction Group than for the Control Group.

In the present study, we would argue that the important point to be made is that the materials were prepared and tested over six weeks using materials and techniques the design of which was indicated by the results of prior experiments as being of potential value as training materials for use in the LL, which would exploit both the advantages offered by the LL facilities, and the learners' capacity for self-instruction and self-assessment. Any materials and techniques which can successfully demonstrate such value must have a strong claim to be examined closely, especially when supported by empirical evidence that they do appear to improve listening comprehension performance as measured by pre- and post-course tests.

That both groups, Instruction and Control, increased their scores from pre-course to post-course is not at all surprising since both groups continued with their normal English classes during the six weeks of the course. To what extent, however, the nature of the materials and the techniques for the exploitation of the LL were major factors in the increased motivation and attention to listening indicated by the Instruction Group's performance is a question which will be discussed in the concluding chapter, Chapter Eight, following.

7.9 Reports and Observations

7.9.1 Technique

The technique of 'clinical observation' was used throughout the six week course. This involved more than simply monitoring the subjects or intervening by intercom. system, and required careful observation of subjects' behaviour, face-to-face discussion, and one-to-one training where necessary. In this way,

the LL became a genuine laboratory, in which the author observed and noted the action of the materials on the students via the training techniques, and the reaction of the students to these materials, while the LL provided, as it were, the facilities for this interaction.

7.9.2 Summary of reports and observations

Reports were made from observations, questions, queries etc. These were divided into three overlapping areas for this summery : materials, techniques, student performance, and the main points from each area are summarised below:

i. Materials

1. The instructions to students under 'Static' practice need changing to include the notion of effort (changed in Set 2) in accurately perceiving stress location.

2. Dialogues should change space and pace by speaker even as early as the later units of Set 1, as a means of preparing students for the 3 - 1 spacing of Set 2.

3. There is perhaps a need for more extensive and less structured practice with fewer instructions at certain points in each set.

4. Material should contain explicit examples of the importance of the stress location in the given/new information structure.

5. A model stress-marked copy of Set 2 Practice 2 (in Appendix VI.1) was given out and proved to be very useful for focussing on specific problems. This could prove to be a useful addition to the battery of materials.

ii. Techniques

1. The 2 - 1 spacing should be considered as basic training for all levels of student ability and must continue as long as is necessary, but no longer, since it is only a means of sensitizing the student to the stress/non-stress and effort/non-effort oppositions, and sounds distorted to NS perceptions.

2. There is a need for low level classroom training as preparation, particularly on silent stress.

3. It is vital for the student to speak at exactly the same time as the recording and not repeat the recording. This is because the practice must be an active matching exercise and not a repetition exercise, since the student must speak his/her own perceptions as recorded by the underlining, and not simply follow the recording.

4. Once the shadowing technique becomes familiar, there is a rapid development of shadowing ability at all levels, up to the limit of the student's current linguistic knowledge. The estimation technique produced either underestimates or estimates that closely resembled the shadowing performance.

5. Students should be encouraged to tap the beat. This appears to help in locating stress and could be considered the counterpart of extra respiratory effort in production, and a slightly more advanced strategy than vocal or sub-vocal rehearsal.

6. (see also i. Materials, above) There is a need for explicit training at intermediate levels and above on the relation of stress to given/new information structure in spoken discourse.

7. There appear to be limits to the shadowing technique when the level of English knowledge is low. The articulation processes at low levels

also seem to slow to match the beat to the stress articulation, and more especially to fit in all the reduced syllables between stresses.

8. The partial dictation technique indicated certain problems. There was not enough prediction/expectancy together with knowledge of English for good, accurate and rapid processing. Even Higher Intermediate and Cambridge FCE students had problems with the partial dictation technique, and made errors which indicated total absence of understanding e.g. : remarkable lightness (describing a pen) was heard as markable whiteness by a student at FCE level. Students need to be informed that they should insert words they know to be present, since from the grammar they know it should be present, even if they do not hear them, e.g. 'the kitchen' in the pre-course and post-course test. In this case, many students insisted that they did not hear the definite article.

iii. Student performance

1. Students became aware of the problems of spacing and pacing and the need to match accurately, and to reduce the value of words between stresses.

2. Students quickly showed different paces of perceptual development which did not correspond to language level as measured by class placement tests.

3. Several students had breath control problems, and this aspect may need further classroom work, or work on a one-to-one basis.

4. Some students needed to use the second recording with the explicit beat for training and practice as well as for assessment. Some had a very poor sense of beat and timing, while at least one showed signs of syncopation in his tapping of beats.

5. Perception by ear alone of the stressed syllable at both word and utterance levels appears to be an inaccurate method of stress location

for some students, especially for low level students. Only active vocal or sub-vocal rehearsal appears to work until knowledge of the language is improved (c.f. the findings of Atkinson-King (1973) on children's correct pronunciation of words of two or more syllables, discussed in Chapter Four, above.)

6. Many students developed a loud and aggressive manner of production while working in the LL booths. This manner sounds remarkably confident and English-like (c.f. Experiment 2, Chapter Five), even with those students who would normally speak English in a halting and hesitating manner.

7. (see also ii. Techniques) Students at lower levels have problems with shadowing as the language becomes more complex and goes beyond their knowledge of English.

8. (on the pre-course and post-course tests) Several students commented that they thought that they had put different items of the same omitted phrase of clause in the pre-course and post-course tests. This suggests that in both tests the language processing channels were overloaded and that perceptions simply focussed on different items in the two tests. The reliability figure (.87) suggests that this was not particularly widespread.

7.10 Summary of findings of the study and conclusions

7.10.1 The findings of the pre-course and post-course test can be summarised as follows:

1. Both groups increased their scores significantly from pre-course to post-course test. While the Instruction Group increased its scores by a

highly significant margin, the difference in significance cannot be said to be conclusive, especially as individual scores may have influenced the results.

2. A comparison of the increase in Instruction and Control Groups' scores showed that the difference in the increase between Instruction and Control Groups was not significant either by subject scores or by item scores, although there was a difference of 6.3% between the Instruction Group mean score increase and the Control Group mean score increase.

3. The materials and techniques which comprised the 'Stress on Listening' course were acceptable to, and appeared to motivate, learners with a wide range of language ability.

4. The materials and techniques exploit LL facilities and make use of the learners' capacity for self-instruction and self-assessment.

7.10.2 From these findings, we may draw the following tentative conclusions:

1. In terms of the development of listening comprehension ability, we cannot conclude from the findings of this study that the use of the stress training materials in the LL will enable learners to understand spoken discourse significantly faster or more accurately, or that they will be able to achieve a significantly higher standard of listening comprehension ability more rapidly and efficiently than by other methods. However, while such controlled pre-course and post-course testing is necessary, it may not have captured the full effect of the training materials on subjects performance, since this effect can best be seen as the development of a conscious awareness of the importance of stress timing in English in both perception and production in real-time, and as an improved (or newly acquired) ability to perceive and produce stress correctly in connected English speech. These arguments and their implications will be taken up and developed further in Chapter Eight, following.

2. While both group samples were small, LL facilities far from adequate, the course some eight hours short of its optimum planned length, and genuine equivalence difficult to establish, it would nonetheless seem that the materials and techniques do exploit the LL facilities and, more importantly, the student potential for self-instruction and self-assessment. As such, they are valid LL materials and techniques in terms of the criteria applied in Chapter Three of this work, namely, that self-pacing, self-criticism and self-responsibility must be present in the student's use of the LL if it can be said to have been fully exploited as a training tool.

Chapter Eight Discussion of findings and conclusions

Chapter Eight : Discussion of findings and conclusions

8.1 Summary of arguments

The first two parts of this thesis, that is, Chapters Two and Three on the language laboratory, and Chapters Four and Five on speech perception and the role of stress and rhythm in understanding connected speech, centre around aspects of the learner/listener's responses to the spoken word. The weld between the two parts may not be totally invisible, but given that the LL is basically a 'LISTEN (master) + TASK (learner)' machine, and that speech perception is concerned with the processing task facing the listener, we feel that the link between the two parts is amply justified.

In the first part, concerned with LL utilization, we have argued that the LL must be judged according to the normal criteria applied to any machine or tool, that is, does it do the job that it was designed to do (in this case, developing articulatory and perceptual control and fluency) better, faster and in a more convenient or learner-centred manner than other means. We have also argued that in terms of these criteria, the LL is not necessarily tied to one specific approach or set of learning principles, but can be fully exploited and integrated in the syllabus using a variety of learner tasks and skill training, provided that the conditions of use are met by learners and teachers. Inevitably, fulfillment of the conditions involves specific training in exploitation of facilities, which effectively limits the types of activity that can be performed in the LL. We have proposed that for the LL to be fully exploited, conditions relating to self-criticism, self-pacing and self-responsibility must be taken into account, and that given the limitations of the LL, this is likely to mean, particularly at lower levels of language ability, that the tasks and activities that learners can be trained to perform will be at the psycho-motor (articulatory and perceptual) level, rather than the cognitive level.

While, as we have already stated, the LL is a LISTEN + TASK machine, the LISTEN part has normally been associated with the stimulus/correct answer parts of the drill chain (except in cases of the LL being used for tests or as a 'listening centre', with no use of the dual-track master/student facility, which, we have argued, is a defining feature of the LL as a training tool). Attempts have been made in recent years to make language drills more "meaningful", but most still have the basic function of developing articulatory fluency and accuracy, and grammatical and lexical accuracy.

In order to relate LL training in listening to the larger process of developing productive and receptive skills in learners, we have adapted the model of Widdowson (1978) shown below:

Figure 8.1 (from Widdowson, 1978 : 60)

	PRODUCTIVE	RECEPTIVE	
AURAL/ VISUAL	TALKING: SAYING	TALKING: LISTENING	USE
AURAL	SPEAKING	HEARING	USAGE

In the context of the LL we may adapt this model as follows in Figure 8.2, below:

Figure 8.2 LL Practice and Training

	PRODUCTIVE	RECEPTIVE	
AURAL	SAYING (role-playing, situations)	LISTENING (intensive & extensive listening	PRACTICE
AURAL	SPEAKING (pronunciation drills, structure drills, dialogue repetition, situational drills)	HEARING (discrimination exercises, stimulus/correct response)	TRAINING

It will be noted that in the adapted model, Figure 2, 'saying' and 'listening' activities are kept separate. Since the LL cannot respond, talking is clearly impossible as a communicative activity. While the 'saying' activities may involve meaning, they can, in no real sense, be said to be communicative. They are practice, a simulation, as it were.

For "listening", the situation is slightly different. Listening can be a communicative process in the LL in which the listener is receiving information on which he or she may or may not act, depending on the nature of the information. There is, for example, nothing to stop a teacher using the weather forecast of the day as listening comprehension practice, thereby also providing the student with "authentic" information on which to base subsequent actions (i.e. whether to take an umbrella or not). Such "communicative" material tends to have a double function, providing not only practice, but also genuine information.

In the lower half of the figure, we have labelled the activities 'training' rather than 'practice' as in the upper half. Not only is there no real attempt at this level to simulate communicative activities (except, perhaps, to contextualise in some materials), but it is the view held in this work that training activities are distinct from practice activities. Practice activities involve the use of knowledge or skills in controlled conditions after the initial acquisition of that knowledge or those skills, whereas training is concerned with the basic acquisition of knowledge or skills in forms which may not be directly related to the final use of the knowledge or skills. The 'speaking' side of 'training' is loaded with the usual types of training activities to be found in LL sessions, and which are the most common occupiers of the TASK part of the LISTEN + TASK model which we have proposed earlier as the basic pattern for use of the LL. It is on the other side of the 'training' level, that is, hearing, that there appears to be few activities. There are two possible explanations for this. Either the few activities present are the only necessary perceptual activities, and the development of listening can then be left to practice at a higher, cognitive level, or useful training activities at the perceptual, psycho-motor level have been omitted.

It is clearly the view of this work that the latter explanation is valid, and that this had to be demonstrated in this thesis not only by reference to research and literature in phonetics, phonology, child language development and speech perception and understanding, but also through experiments held in realistic conditions which would provide empirical evidence to support this explanation. Thus, in the second part of this thesis, Chapters Four and Five, the focus was shifted to speech perception, and in particular to the perception of stress and rhythm, and the role such perception plays in the accurate decoding of connected English speech. It was important in this part to establish not only whether stress and rhythm played an active

part in the psycho-motor aspects of production and reception, but whether this active part was important or even essential to the higher level, cognitive encoding and decoding processes.

We argued, firstly, through the literature that there is ample recent evidence to suggest that native speakers of English actively manipulate stress to convey meaning unambiguously, to focus on new or important information, to indicate the given/new structure of discourse, and to maximise information rate. We also argued that research indicates that although isochrony has not been found to be an objective phenomenon in speech when measured instrumentally, nonetheless, it does appear to be a perceptual phenomenon, which native speakers make use of in encoding and decoding utterances efficiently. However, it was felt to be important to conduct experiments with both learners and native speakers of English on stress perception and production in connected speech in order to be able to argue, with empirical evidence as support, that not only is there a case to be made for training learners in stress perception (and production) as a feature of native speaker command of English, but that there is also a case for considering that in native speakers, accurate perception of stress is an important aspect of rapid and efficient processing at a cognitive level. We also wished to argue that in learners the absence of training in stress perception in connected speech is likely to delay development of listening ability, since the learner must rely either on heuristic processes for rapid decoding (which may, of course, lead to the use of stress perception as an aid to decoding) or on discrimination and item spotting techniques, which are manifestly inadequate for processing continuously arriving speech.

The findings of the experiment reported in Chapter Five may be summarised as follows:

1. That native speakers perceive main stress more frequently and more accurately than learners of English.

2. That learners' stress perception is greatly aided by regularising the spacing and pacing of main stress.

3. That differences in accuracy of stress perception between learners of English do not appear to be linked to level of knowledge of English as assessed.

4. That native speakers and learners have different approaches to the comprehension of spoken text and discourse, with learners being far more dependent on the actual message than native speakers.

5. And lastly, that regularising the spacing and pacing of the main stress pattern may play an important role in aiding learners to follow informal, conversational varieties of spoken discourse.

It was considered that from the results of the experiments, we were justified in devising a course for training learners in stress perception (and production) in which materials were simplified and graded according to the spacing and pacing of the main stress, as well as more usual criteria of lexical value and frequency, and structural complexity. These materials would then fit in to the 'Hearing/Training' part of the model given in Figure 8. 2., above, and would provide the active and dynamic component of the psycho-motor training of learners, that is, that part of listening in which real-time processing capacity is a major factor.

Clearly, these materials and the techniques used are, in themselves, of little value (or as much value as any training activity in isolation) and must be judged by the effect they have on the processing ability of learners. That is, do learners understand spoken English more confidently, efficiently and accurately if they have received a course in stress perception ? The results of the tests given to subjects before, during and after the Test Course suggest, firstly, (Test 1, Set 1. see Chapter Seven) that learners can be trained in stress perception (and production). This is an important

point, since while the training programme may be without value in isolation, it must still have its own system of assessing progress, according to its own criteria of achievement. Secondly, the results of the pre- and post-course tests suggest that the materials and techniques used may improve listening comprehension development, through an improvement in processing capacity. We are not claiming, therefore, that training in stress perception directly improves the learners' conscious ability to understand spoken discourse, rather than it allows the understanding process to operate more efficiently and accurately within the constraints of real-time.

The importance of the LL as the vehicle for such training must not be underestimated. The most important feature of the stress training course is the active and critical matching of the main stress pattern as perceived by the learner/listener with the 'objective' stress pattern of the master. Such a training procedure is only feasible using a dual-track master/student record and playback facility, which, we have argued, is a defining feature of the LL. With regard to the materials and techniques of the Test Course, the results and observations indicate that subjects were able to exploit the facilities of the LL so as to maximise the self-criticism, self-pacing and self-responsibility aspects of both the training course and of the LL facilities.

8.2 Conclusions

The results of the Test Course (Chapter Seven, section 7) were not conclusive enough for us to make strong claims about the efficacity of the methods, materials and use of the LL. However it is frequently the case that learners do not show improvement during or immediately after training except in the isolated skills that are being trained. It was naturally hoped that learners would carry away with them strategies which they could apply to the language around them, that is, to the genuinely communicative process of

decoding connected speech. In this respect, we would claim no more than that the subjects who took part in the Test Course developed an awareness of the importance of both word and sentence stress, and were trained in the perception and production of both in connected text and discourse for some twenty hours. They were also shown how stress location is related to given/new information structure, to contrast and emphasis, to speaker changes, and to density of information, and, through training and testing, became aware of the importance of following language accurately when not thoroughly familiar with the topic of the discourse.

We would also claim that the Test Course achieved positive results in that learners developed an ability to criticise, correct and evaluate their own performance of stress location in connected speech in both perception and production, and to control their own pace or rate of perceptual development. There is also informal evidence from Stevenson College that, after the course, teachers included more stress training in their work, and concentrated in particular on the accurate perception of stress and rhythm in connected English discourse.

The place of such a training course in the whole syllabus, given time allocation constraints, is a matter of identifying the objectives of language learning for particular students, and including such a training programme where the development of a rapid and confident ability in understanding connected speech (especially from remote sources) is called for. It was felt that the twenty hours given in the Test Course was a little short of the optimum length for the post-elementary/pre-intermediate student, who stands to gain most from such a training. In an intensive programme of twenty-five hours per week, one would want to give at least one hour per day to stress training, especially in the early stages (i.e. first two weeks), then change the ratio of listening practice to stress training so that there was less training and more practice.

In remedial cases such as the "Proficiency" students who were mentioned in Chapter One as being one reason for the present course being written, a more selective introduction might be possible, passing rapidly to 'natural' spacing and pacing ratios, and providing follow-up practice in listening using topics related to those in the passages with regularised stress.

8.3 Future Work and Research

Listening is an area in which there is a great deal of opinion and little experimentation. We have attempted in this thesis to examine one aspect of listening and the developmental needs of learners with regard to listening. In this we have gained considerable help and insights from other, related disciplines, which have, themselves, only recently begun to look in any serious and practical way at the listening process and the development of listening ability from the perceptual point of view. As Martin states in an article on rhythmic expectancy in continuous speech production:

> "Nevertheless, the obvious (but far from trivial) fact is that the communicative significance of events in the speech chain ultimately will be determined not on acoustic or physiological grounds, but on perceptual grounds. Studies focussing on continuous speech as inputs, and real-time factors in processing, must precede any adequate account of the perceptual process." (1975 : 174)

However, Martin continues: "Articulatory and acoustic phonetics are advanced endeavours whereas "perceptual phonetics" lags far behind". (loc. cit.). In applied linguistics and language teaching we seem to lag still further behind, waiting for research in other fields and at times over-concerned at the prospect of conducting experiments which might be criticised by those in related disciplines where humans and instruments can be more readily manipulated than foreign learners, for whom, after all, the fruits of the research are ultimately intended. Experimentation must obviously be carefully controlled, but must, at the same time, be both valid and practical

in terms of the needs of foreign learners of English. In this thesis, the LL itself proved to be an invaluable experimental tool, a genuine laboratory, as it were, especially in the Test Course, where subjects could be systematically observed.

From the point of view of the research conducted in the present work, and its possible future development, we feel that one fruitful area of study might be that concerned with level of language knowledge and perceptual ability. Another area might be an investigation into perception of stress and rhythm linked to carefully controlled information structure in listening. In particular, it is felt that the findings of the present research call for longitudinal studies of how the perceptual and listening processes of the adult language learner develop and adapt over time, and how the learner may adopt different strategies to cope with different situations, as in the first language. Lastly, since this thesis had two practical aims in developing language teaching materials and in improving the exploitation of the LL, the obvious area for future work and research is with the materials themselves - developing and testing them further in the hope that this will provide still more insights into the problems of listening comprehension for adult learners of English.

APPENDICES

APPENDIX I. 1

Questionnaire 1. Name:

1. Attitude to the Language Laboratory as a class teaching aid:

1.1 Please put a circle around the opinion which you hold in each case:

LL sessions are enjoyable:	strongly agree / agree / neutral / disagree / strongly disagree
LL sessions are useful:	strongly agree / agree / neutral / disagree / strongly disagree
LL helps improve pronunciation:	strongly agree / agree / neutral / disagree / strongly disagree
LL helps grammatical accuracy:	strongly agree / agree / neutral / disagree / strongly disagree
LL helps general fluency:	strongly agree / agree / neutral / disagree / strongly disagree
I think students work well in the LL:	strongly agree / agree / neutral / disagree / strongly disagree
The LL makes it easy for students to concentrate:	strongly agree / agree / neutral / disagree / strongly disagree
The privacy offered by the LL is a positive factor:	strongly agree / agree / neutral / disagree / strongly disagree
My students generally like the LL:	strongly agree / agree / neutral / disagree / strongly disagree

1.2 The LL is useful:

mainly for beginners / mainly for advanced students / at all levels

I should like to spend per week in the LL:

50% + / 40-50% / 30-40% / 20-30% / 20% - / 0%

I actually spend per week in the LL:

50% + / 40-50% / 30-40% / 20-30% / 20% - / 0%

Keyman / General / Other / Teaching hours per week (inc. LL) :

I should like LL sessions:

every day twice / every day once / once per week / more than once per week / not in the curriculum

APPENDIX I. 1 : Questionnaire 1. (cont'd)

I should like each session to be:

10 mins. / less than 30 mins. / 30-45 mins. / 60 mins. /

longer / flexible

1.3 Please grade the following exercises according to level for value in LL practice:

beginner = 1; elementary = 2; intermediate = 3; high intermediate = 4; advanced = 5.

repetition	very useful	/ quite useful	/ of little use	/ harmful
structure drills (pattern practice)	very useful	/ quite useful	/ of little use	/ harmful
passages for listening only	very useful	/ quite useful	/ of little use	/ harmful
passages for listening followed by questions	very useful	/ quite useful	/ of little use	/ harmful

1.4 Depending on the level, do you think it is more profitable for students to work:

1. In lock-step:

2. in their own time:

Appendix I. 2

Questionnaire 2. Name:

Q 2.1 Language Laboratory features: theoretical

Please grade each of the following features in a LL according to whether you think they are:

5: ESSENTIAL
4: HIGHLY DESIRABLE
3: IMPORTANT, but the LL can perform efficiently without it
2: USEFUL, in that it would add to the value of the LL but not at all important for its success or failure
1: UNIMPORTANT
0: IRRELEVANT/WASTEFUL/HARMFUL (Specify which)

Each student should be able to answer all questions and work all the time	5 4 3 2 1 0
Each student should be responsible for his own performance	5 4 3 2 1 0
Each student should be able to carry away a record of his own performance	5 4 3 2 1 0
Each LL session should have a variety of voices	5 4 3 2 1 0
Student recording should be separate from the master	5 4 3 2 1 0
Student should be able to listen critically to his own voice	5 4 3 2 1 0
Each student should be able to check taped information and have access to cross-referenced material	5 4 3 2 1 0
Each student should be able to work at his own pace	5 4 3 2 1 0
Each student should have a copy of the master readily available for review	5 4 3 2 1 0
LL should be able to provide an untiring and authentic model	5 4 3 2 1 0
Teacher should be able to deal with student problems individually	5 4 3 2 1 0
Each student should have the privacy of a booth	5 4 3 2 1 0
The LL should be movable	5 4 3 2 1 0
The LL should be technically simple to operate	5 4 3 2 1 0
The teacher should play a mediating role between the LL and student	5 4 3 2 1 0
LL should have the capacity for a variety of programmes and activities	5 4 3 2 1 0

Q 2.2 Language Laboratory features: actual

Please grade the following "advantages" of the LL as a class aid (over single T.R.)

1. Each student can answer all the questions and work all the time	Major/Minor/Negligible/Not an adv.
2. Each student is responsible for his own performance	Major/Minor/Negligible/Not an adv.
3. The variety of voices makes the LL session more interesting	Major/Minor/Negligible/Not an adv.
4. The student can listen critically to his own voice	Major/Minor/Negligible/Not an adv.
5. The student can work at his own pace	Major/Minor/Negligible/Not an adv.
6. The LL can provide an untiring and authentic model	Major/Minor/Negligible/Not an adv.
7. The teacher can deal with each student's problems individually	Major/Minor/Negligible/Not an adv.
8. Students are not afraid to speak in the privacy of the LL booth	Major/Minor/Negligible/Not an adv.
9. It is easier for a student to concentrate in the LL	Major/Minor/Negligible/Not an adv.
10. A variety of programmes and activities is possible	Major/Minor/Negligible/Not an adv.

Appendix I. 2 (cont'd)

Questionnaire 3. Name:

Q 3. Language Laboratory features: drawbacks

Please grade the following "drawbacks" of the LL as a class aid (c.f. single T.R.)

Class disruption	Major/Minor/Negligible/No drawback
Student concentration time very limited	" " " "
Low level mechanical work much of the time	" " " "
Largely artificial language work	" " " "
Only linear programmes possible with no cross-referencing possible	" " " "
Practice limited by machine capability	" " " "
Pre-recording essential for best use	" " " "
Teacher must be trained to exploit LL and LL materials	" " " "
No permanent record of student performance	" " " "
No permanent record of master for student	" " " "
Large amount of work by student unmonitored	" " " "
Likelihood of over/underlearning	" " " "
Taped materials control nature and content of students' responses	" " " "
Student cannot check on earlier performance	" " " "
A-A-C. system or repeater needed for efficient use and critical development	" " " "
Problem of self-criticism and evaluation	" " " "
Work in LL (time consuming)	" " " "
Student controlled pace is not necessarily best	" " " "
Large amount of supplementary materials needed	" " " "
Who decides pace ?	" " " "
Student interest time limited	" " " "
Student participation time limited	" " " "
Teacher has very limited time per student	" " " "
Teacher/student communicate via headset	" " " "

Student must know use of 'T' call	Major	Minor	Negligible	No drawback
Student speak 'Boothspeak'	"	"	"	"
Students unable/unwilling to transfer after LL session	"	"	"	"
Claustrophobia	"	"	"	"
Student's performance reactive not interactive	"	"	"	"
Need for wide variety of activity	"	"	"	"
Students must be 'happy' using LL controls and performing drills and exercises	"	"	"	"
Material must be available in quantity	"	"	"	"
Hardware must be suitable	"	"	"	"
LL material and work must be integrated	"	"	"	"

Other drawbacks:

Appendix I. 3

Questionnaire 4. Name:

Q 4. Language Laboratory : use

Please grade the following features of LL use as a class aid according to whether you think they are:

5: ESSENTIAL

4: VERY IMPORTANT, but not essential

3: IMPORTANT, but the LL session would not be wasted if it were absent

2: USEFUL, that is, adding to the value of the session

1: UNIMPORTANT

0: NEGATIVE RESPONSE, may be wasteful or even harmful

The teacher must like using the LL	5 4 3 2 1 0
The teacher must be 'happy' using the LL	5 4 3 2 1 0
The teacher must be experienced in LL use in order to exploit it successfully	5 4 3 2 1 0
Start up time must be short	5 4 3 2 1 0
All material should be indexed	5 4 3 2 1 0
LL work should be co-ordinated with class work	5 4 3 2 1 0
LL work should be purpose designed	5 4 3 2 1 0
All LL work should be pre-recorded	5 4 3 2 1 0
There should be a variety of materials in any LL session	5 4 3 2 1 0
There should be a variety of activities in any LL session	5 4 3 2 1 0
There should be a choice of materials in any LL session	5 4 3 2 1 0
There should be a choice of activities in any LL session	5 4 3 2 1 0
There should be a variety of pace in any LL session	5 4 3 2 1 0
Recorded materials should always be integrated with other materials	5 4 3 2 1 0
Teacher should monitor students throughout session	5 4 3 2 1 0
Teacher should spend most time analysing and correcting students' errors	5 4 3 2 1 0
Teacher should give short correction rather than lengthy explanation	5 4 3 2 1 0
Teacher should make notes of students' errors	5 4 3 2 1 0
All students should be clear as to pedagogical function and limitations of LL	5 4 3 2 1 0

Appendix I. 3 (cont'd)

All students should be 'happy' mechanically	5 4 3 2 1 0
All students should be 'happy' manipulatively (i.e. they should be able to perform drills and understand phases of drills)	5 4 3 2 1 0
All students should be clear as to objectives of each session	5 4 3 2 1 0
All students should be able to vary pace	5 4 3 2 1 0
All students should be 'happy' with pre-set pace	5 4 3 2 1 0
All students should be able to self-correct/evaluate	5 4 3 2 1 0
All students should know when and how to use 'T' call	5 4 3 2 1 0
Direct follow-up of LL practice should take place immediately after or as soon as possible	5 4 3 2 1 0
There should be a choice of pace in any LL session	5 4 3 2 1 0

Other essential features:

important features:

Appendix I. 4

Questionnaire 5/6 Name:

Q 5 Language teaching materials: ideal profile

What features do you think good language teaching materials should display ? To help you decide, I have given a list of bi-polar scales with features at either end that you might want to emphasise more or less at each level.

Try giving one value for each scale at each level, from +3 to -3 and record it by putting a cross through the number selected.

There are four levels of scoring:

+3/-3= very important/essential; +2/-2 = important and useful

+1/-1 = no really firm opinion, but this side rather than the other

0 = both equally important (please use this sparingly)

4.1 BEGINNERS

discrete	+ 3 2 1 0 1 2 3 -	integrated
programmed	3 2 1 0 1 2 3	flexible
reactive	3 2 1 0 1 2 3	interactive
linear-systematic	3 2 1 0 1 2 3	indexed-selective
teacher controlled	3 2 1 0 1 2 3	student controlled
imitative	3 2 1 0 1 2 3	creative
phonetic	3 2 1 0 1 2 3	semantic
structural	3 2 1 0 1 2 3	functional
devised/adapted	3 2 1 0 1 2 3	authentic
skill-based	3 2 1 0 1 2 3	concept-based
habit based	3 2 1 0 1 2 3	memory-based

4.2 ELEMENTARY

discrete	+ 3 2 1 0 1 2 3 -	integrated
programmed	3 2 1 0 1 2 3	flexible
reactive	3 2 1 0 1 2 3	interactive
linear-systematic	3 2 1 0 1 2 3	indexed-selective
teacher controlled	3 2 1 0 1 2 3	student controlled
imitative	3 2 1 0 1 2 3	creative
phonetic	3 2 1 0 1 2 3	semantic
structural	3 2 1 0 1 2 3	functional
devised/adapted	3 2 1 0 1 2 3	authentic
skill-based	3 2 1 0 1 2 3	concept-based
habit-based	3 2 1 0 1 2 3	memory-based

4.3 INTERMEDIATE

discrete	+ 3 2 1 0 1 2 3 -	integrated
programmed	3 2 1 0 1 2 3	flexible
reactive	3 2 1 0 1 2 3	interactive
linear-systematic	3 2 1 0 1 2 3	indexed-selective
teacher controlled	3 2 1 0 1 2 3	student controlled
imitative	3 2 1 0 1 2 3	creative
phonetic	3 2 1 0 1 2 3	semantic
structural	3 2 1 0 1 2 3	functional
devised/adapted	3 2 1 0 1 2 3	authentic
skill-based	3 2 1 0 1 2 3	concept-based
habit-based	3 2 1 0 1 2 3	memory-based

Appendix I. 4 (cont'd)

4.4 HIGH INTERMEDIATE

discrete	+ 3 2 1 0 1 2 3 -	integrated	_____
programmed	3 2 1 0 1 2 3	flexible	_____
reactive	3 2 1 0 1 2 3	interactive	_____
linear-systematic	3 2 1 0 1 2 3	indexed-selective	_____
teacher controlled	3 2 1 0 1 2 3	student controlled	_____
imitative	3 2 1 0 1 2 3	creative	_____
phonetic	3 2 1 0 1 2 3	semantic	_____
structural	3 2 1 0 1 2 3	functional	_____
devised/adapted	3 2 1 0 1 2 3	authentic	_____
skill-based	3 2 1 0 1 2 3	concept-based	_____
habit-based	3 2 1 0 1 2 3	memory-based	_____

4.5 ADVANCED

discrete	+ 3 2 1 0 1 2 3 -	integrated	_____
programmed	3 2 1 0 1 2 3	flexible	_____
reactive	3 2 1 0 1 2 3	interactive	_____
linear-systematic	3 2 1 0 1 2 3	indexed-selective	_____
teacher controlled	3 2 1 0 1 2 3	student controlled	_____
imitative	3 2 1 0 1 2 3	creative	_____
phonetic	3 2 1 0 1 2 3	semantic	_____
structural	3 2 1 0 1 2 3	functional	_____
devised/adapted	3 2 1 0 1 2 3	authentic	_____
skill-based	3 2 1 0 1 2 3	concept-based	_____
habit-based	3 2 1 0 1 2 3	memory-based	_____

What other features or factors go to make up good language teaching materials in your opinion ? :

Appendix I. 5

Questionnaire 7/8 Name:

5. Language Laboratory materials : actual profile

What features do you think current LL materials display ?
Again I am using the bi-polar scale, but this time the values will be:

+3/-3 = essential feature of all current LL materials I use
+2/-2 = found in over 50% + of materials I use
+1/-1 = unsure, but this side rather than the other
0 = both in equal proportion

5.1 GENERAL (level unspecified)

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

5.2 BEGINNERS

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

5.3 ELEMENTARY

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

Appendix I. 5 (cont'd)

5.4 INTERMEDIATE

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

5.5 HIGH INTERMEDIATE

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

5.6 ADVANCED

discrete	+	3	2	1	0	1	2	3	-	integrated
programmed		3	2	1	0	1	2	3		flexible
reactive		3	2	1	0	1	2	3		interactive
linear-systematic		3	2	1	0	1	2	3		indexed-selective
teacher controlled		3	2	1	0	1	2	3		student controlled
imitative		3	2	1	0	1	2	3		creative
phonetic		3	2	1	0	1	2	3		semantic
structural		3	2	1	0	1	2	3		functional
devised/adapted		3	2	1	0	1	2	3		authentic
skill-based		3	2	1	0	1	2	3		concept-based
habit-based		3	2	1	0	1	2	3		memory-based

What other features do you think are found in current LL materials:

Could you list the courses and materials you use in the LL:

Appendix I. 6

Definitions for working through the differential scales:

Discrete: : A course/set of materials teaching or testing one clearly identifiable point at a time e.g. minimal pair /i/ /i:/

Integrated : A course/set of materials teaching or testing several concepts or skills implicitly or explicitly at one time e.g. multi-purpose dialogue.

Programmed : A course/set of materials which proceeds from point to point in strictly controlled fashion and where the successful acquisition of new information is dependent on preceding information having been learnt successfully. One could not suddenly jump several points.

Flexible : Although teaching points may be ordered and graded, the course/set of materials is laid out in such a way that not every point must be covered in a rigorous, step-by-step manner.

Reactive : Students are encouraged to think of language practice in terms of stimulus + single correct response.

Interactive : Students are encouraged to think of language practice as a two way communicative process where a stimulus may produce an unpredictable response and a stimulus in return.

Linear-systematic : The course/set of materials proceeds in strict linear progression from Unit A to Unit Z. There has clearly been considerable thought in the development of a rigorous structural progression.

Indexed-selective : Although the course may carry a list of structures in some apparent order, the teacher is largely free to select units or sub-units of the course and to ignore the serial ordering of the course/set of materials.

Teacher controlled : The course/set of materials is constructed and written in such a way that a student would make little progress on his/her own. Or T. has complete control of pace, activity and materials.

Student controlled : The course/set of materials is constructed and written in such a way that the student could make reasonable progress in all skills without the teacher. Or S. has large measure of control over pace, activity and materials.

Imitative : The practice offered by the course/set of materials is structly controlled and allows little opportunity for the student to make errors.

Creative : The practice offered by the course/set of materials is loosely controlled and offers ample opportunity for the student to form his own hypotheses even if incorrect.

Appendix I. 6 (cont'd)

Phonetic : The course/set of materials provide practice in such a way that the sound and form of the responses are the only factors used in judging the correctness of the response.

Semantic : The course/set of materials provide practice in such a way that not only are sound and form important, but the ultimate correctness of the response is also checked by the meaning of the utterances in context.

Structural : Language as presented in the course/set of materials is seen primarily as form.

Functional : Language as presented in the course/set of materials is seen primarily as a way of conveying meaning. Any function may have several forms.

Devised/adapted : The language used in texts, dialogues, exercise, drills bears little resemblance to native speaker language. There has been considerable simplification/modification and phonological features such as false starts and hesitation have been omitted.

Authentic : The language used in texts, dialogues, exercises, drills has been taken directly from normal, standard native speaker language with little editorial intervention.

Skill-based: : The content of the course/set of materials is based on specific performance objectives i.e. ability to take noted in English from radio broadcasts, ability to read a report aloud on a professional topic.

Concept-based : Content of course/set of materials based on explicit mastery of concepts such as time, duration, distance, contextual meaning etc.

Habit-based : The practice provided by the course/set of materials is based on the belief that language can be mastered through the acquisition of 'habits' through manipulative drills and pattern practice. The development of automatic linguistic responses through implicit or explicit stimulus-response type learning.

Memory-based : The practice provided by the course/set of materials is based on the belief that language can be mastered through the conscious study of the rules underlying the forms of the language and their conscious commitment to memory.

Appendix I. 7

Grid 1 : CLASS DESCRIPTION

Learning : Content of course:

Objectives:

Time:
Time of day:
Learning environment:

Material:

Progressive rigour:

Students : Socio-cultural:

Intellect:

Aptitude: 1) for learning:

2) for language learning:

Motivation:

Level of L2:

Teachers : Attitude to students:

Attitude to method:

Attitude to LL:

Length of experience with LL:
Cultural awareness:

Linguistic and psycholinguistic knowledge:

Class : Number of students:
Average age: max. age: min. age:
Class level:
L1's:
Use of LL before:

Teachers native speakers/non-native speakers:
Country of origin:

Teachers ages:

Appendix I. .8

GRID 2: OBSERVATION OF CLASS ..... with ..... at ..... on 1979

LAB. SESSION

COMMENTS

integrated/supplementary
class mode/library mode
supportive/initial
tape only/multi-media/printed matter/realia
cognitive-learning/psycho-motor-manipulative
short/long : length: % of overall time:
frequent/infrequent : frequency/regularity:

TEACHER'S USE OF LL. during session

T. 'happy' use of LL	5 4 3 2 1 0
T. likes using LL	5 4 3 2 1 0
T. experienced in LL use	5 4 3 2 1 0
objectives of session explicit	5 4 3 2 1 0
start up time short	5 4 3 2 1 0
material indexed	5 4 3 2 1 0
LL work co-ordinated	5 4 3 2 1 0
LL work purpose-designed	5 4 3 2 1 0
LL functions fully exploited	5 4 3 2 1 0
all pre-recorded	5 4 3 2 1 0
variety of materials	5 4 3 2 1 0
variety of activities	5 4 3 2 1 0
variety of pace	5 4 3 2 1 0
choice of material	5 4 3 2 1 0
choice of pace	5 4 3 2 1 0
T. control of pauses	5 4 3 2 1 0
recorded materials integrated with other materials	5 4 3 2 1 0
teacher monitors students/time	5 4 3 2 1 0
pedagogical monitoring/time	5 4 3 2 1 0
instructional monitoring/time	5 4 3 2 1 0
monitoring from individual to general	5 4 3 2 1 0
teacher makes notes of S. errors	5 4 3 2 1 0
analysis and diagnosis of S. pronunciation errors	5 4 3 2 1 0
analysis and diagnosis of S. str. errors	5 4 3 2 1 0
teacher feed in of supplementary materials	5 4 3 2 1 0
individualised learning/time	5 4 3 2 1 0

Appendix I, .9

GRID 3: OBSERVATION OF CLASS ..... with ..... at ..... on 1979

STUDENTS USE OF LL.		COMMENTS
All S. clear as to pedagogical function of LL	5 4 3 2 1 0	
all S. 'happy' manipulatively	5 4 3 2 1 0	
all S. 'happy' mechanically	5 4 3 2 1 0	
S. tend to 'overlearn'	5 4 3 2 1 0	
S. tend to 'underlearn'	5 4 3 2 1 0	
All S. clear as to objectives of session	5 4 3 2 1 0	
S. able to vary pace	5 4 3 2 1 0	
S. 'happy' with pre-set pace	5 4 3 2 1 0	
S. able to self-correct/evaluate	5 4 3 2 1 0	
S. capable of self-correcting/evaluating	5 4 3 2 1 0	
S. frequent use of T. call	5 4 3 2 1 0	
S. discriminating in use of T. call	5 4 3 2 1 0	
S. control 100% /time	5 4 3 2 1 0	
S. interested/time	5 4 3 2 1 0	
S. participating/time	5 4 3 2 1 0	
S. individualised learning/time	5 4 3 2 1 0	

MATERIALS USED IN SESSION

Production factors:	clarity:	speed:
	intonation:	noise:
	tone:	accent:
	intervals:	

Scripts/Teaching notes:

Recorded materials: 1) exercises/drills COMMENTS

Prepared for LL use/prepared for textbook/multi-purpose:

compat. with other materials	5 4 3 2 1 0
unambiguous instructions	5 4 3 2 1 0
segments of appropriate length	5 4 3 2 1 0
str. content of segments approp. to objectives	5 4 3 2 1 0
controlled/graded	5 4 3 2 1 0
number of changes from one seg. to another controlled/graded	5 4 3 2 1 0
sufficient examples of str. pattern before change of pattern	5 4 3 2 1 0
single correct response	5 4 3 2 1 0
sounds well-related to material accompanying	5 4 3 2 1 0

How will materials used help meet teaching objectives in terms of skills, content, grading? :

APPENDIX I. ..10

Operational Definitions for Use with Grid 2. and Grid 3.

Teacher's Use of LL

T. 'happy' use of LL:

5 - Teacher may dislike using LL or may be inexperienced in use but demonstrates a manipulative and mechanical sympathy with controls and functions which indicate an awareness not only of the mechanical operation of the equipment, but also of its inherent methodological advantages and limitations.

3/4 - Neutral performance, i.e. no particular sympathy, but apparently aware of the nature of the equipment and appropriate manner of exploiting it.

1/2 - Teacher may like using the LL and may even be experienced in its use, but demonstrates an absence of manipulative and mechanical sympathy with controls and functions which indicate a lack of awareness not only of the nature of the equipment, but also of its inherent methodological advantages and limitations.

T. likes using LL: Question asked directly to teachers.

5 - Very much
4 - Quite like
3 - Neither like nor dislike (neutral)
2 - Not much
1 - Dislike

T. experienced in LL use: Frequency x Duration x Length of time
per week fraction months
of hour

5 - 100+ = Good/Very
4 - 80+ = Moderate
3 - 60+ = Adequate
2 - 40+ = Limited
1 - 20+ = Inadequate/Inexperienced

Objectives of session explicit:

5 - In classroom before LL session or at some earlier point, teacher has explained fully the aim and purpose of the LL session and has provided examples of this. Objectives have been explained in 'concrete' terms rather than as 'doing some listening' for example or 'practising the past tense'. Teacher has made it clear that after the session, the student will be expected to perform certain tasks connected with the objectives of the LL session.

3 - Teacher explains purpose of LL session in general terms without making objectives as precise as in 5, but still translating objectives into actual tasks that the S. will have to perform in the LL i.e. exercise and drill types.

1 - T. gives no explanation as to purpose and objectives of LL session beyond the simple fact of the session.

Start-up time short:

5 - S. working fully in booths within 3 minutes of T. arrival
4 - As 5 within 5 minutes of T. arrival
3 - 7 minutes
2 - 10 minutes
1 - Longer than 10 minutes

APPENDIX I. 10/2

Definitions

material indexed:

5 - point of tape needed fully indexed on tape box on in T. notes.

4 - point on tape needed generally indexed - less precisely than 5.

3 - tape divided into sub-units but exc. not indexed.

2 - tapes copied and divided into unindexed units.

1 - master copy with no index.

LL work coordinated:

5 - T. has arranged LL work to fit in to sequence of learning so that LL work follows 'naturally' from class work, and so that follow-up work in class will develop points of LL work.
OR - T. has planned specific points studied during preceding session that will be developed and practised in LL session.

3 - Some relation of LL work to class work.

1 - Little or no sense of coordination between LL work and class work: work in LL apparently random.

LL work purpose designed:

5 - Ideally suited to explicit purpose i.e. making full use of assumed advantages of LL and its programmed capabilities.

3 - Adequate for task demanded.

1 - Although in theory purpose designed, in practice inappropriate for objectives of session OR not purpose designed and this is evident.

LL function (fully) exploited:

5 - Fully]
3 - Adequately] for the objectives and demands of the session
1 - Barely]

All pre-recorded:

5 - All.

4 - All bar extra separate programmes for individuals.

3 - Only initial programme.

2 - Very short initial programme only.

1 - None.

Variety of materials:

5 - Very wide variety i.e. 5+ different sources.

3 - Some variety, especially towards end of session.

1 - None.

Variety of Activity:

5 - 5+ different activities.

3 - Drills and exercises of different types.

1 - Single activity.

APPENDIX I. 10/3

Definitions

Variety of pace:

5 - Either frequent changes of pace OR steadily quickening pace.

3 - Occasional changes of pace.

1 - No change:- single pace throughout session e.g. four phase drills.

Choice of material:

5 - S. able to request wide choice on separate programmes.

3 - Limited choice for those who have completed main body of work for session.

1 - No choice.

Choice of pace:

5 - S. able to vary pace of material from outset.

3 - S. able to vary pace for 50% of time.

1 - Lock-step throughout.

T. control of pauses:

5 - T. has full control throughout session either via console or through material.

3 - T. control at certain points where judged necessary.

1 - Pre-set control throughout.

Recorded materials integrated with other materials:

5 - Fully integrated.

3 - Some adaptation and improvisation to give degree of integration evident.

1 - No apparent integration. Materials on tape have little in common with other class materials.

T. monitors S./time:

5 - 100% of available time.

4 - 75% of available time.

3 - 50% of available time.

2 - 25% of available time.

1 - 0% of available time.

Pedagogical monitoring/time:

5 - 100% of monitoring time; 4 - 75%; 3 - 50%; 2 - 25%; 1 - 0%.

Instructional monitoring/time:

5 - 100% of monitoring time; 4 - 75%; 3 - 50%; 2 - 25%; 1 - 0%.

APPENDIX I. 10/4

Definitions

Monitoring from individual to general:

5 - Frequent use of technique. T. notes that several students make same error and makes general comment to class.

3 - Occasional use of technique.

1 - No use of technique.

T. makes notes of S. errors:

5 - Full notes for later explanation and development.

3 - Occasional notes.

1 - No notes made.

Analysis and diagnosis of student errors:

5 - Full analysis and diagnosis but only after student has shown inability to solve own problem.

3 - Some analysis and diagnosis. Occasional simple correction after student fails to correct error.

1 - Simple correction only. Frequently over-hasty.

Analysis and diagnosis of S. pronunciation errors:

5 - As general errors.

3 - As general errors.

1 - As general errors.

Analysis and diagnosis of S. structural errors:

5 - As general errors.

3 - As general errors.

1 - As general errors.

T. feed-in of supplementary materials:

5 - After successful completion of initial prog(s). T. offers choice and variety of supplementary mats/acts.

3 - Some relevant supplementary work after completion of prog(s).

1 - Time available for supplementary work largely wasted. Initial programme(s) overlong. Irrelevant time-filling.

Students' Use of LL

All S. clear as to pedagogical function of LL:

5 - By pedagogical function is meant the use of the LL for practising aural/oral skills in L2, the benefits of having a constant model, of having a playback evaluative facility (if available), of being able to control pace and of being responsible for their own performance. Ped. function therefore is not to replace teacher but to allow S. period of practice on own with given information. All S. clear on this.

APPENDIX I. 10/5

Definitions

All S. clear as to pedagogical function of LL: (see 10/4 for definition).

5 - All S. clear as to above.

3 - S. clear that LL has certain limited functions.

1 - S. obviously unclear as to role/function of LL.

All S. 'happy' manipulatively:

5 - S. is able to perform the standard variety of drills and exercises e.g. repetition, transformation, substitution etc., and to move from activity to activity with minimum loss of concentration.

3 - Some students are not so 'happy', but able to benefit from practice.

1 - S. definitely unhappy and unclear as to how to perform drills (c.f. T. instructional monitor/time).

All S. 'happy' mechanically:

5 - All S. able to operate all controls with no apparent difficulty and familiar with layout of controls. In particular able to operate pause and rewind for evaluative purposes.

3 - Most but not all S. as 5.

1 - S. unhappy. Session largely wasted for this reason.

S. tend to overlearn:

5 - Over 50% of students have a tendency to stay too long on individual phrases and exercises and to be over critical within the terms of the objectives of the session. That is, S. miss the point of exercise and practise extra details.

3 - Some, but under 50% of S. overlearn at some point in the session.

1 - Few, if any, S. overlearn at any time.

S. tend to underlearn:

5 - Over 50% of S. have a tendency to rush through exercise and drills without sufficient attention to evaluation of performance and with insufficient use of pause and replay facilities.

3 - Some S., but under 50%, underlearn at some points in the session.

1 - Few, if any S., tend to underlearn at any time.

All S. clear as to objectives of session: (c.f. objectives made explicit)

5 - All S. apparently clear.

3 - Some unclear, but able to perform tasks as instructed.

1 - S. generally so unclear as to have difficulty in performing tasks as instructed.

S. able to vary pace:

5 - S. have complete control of pace of learning and practising throughout session.

3 - S. have control for over 50% of session e.g. after transfer of programme in lock-step.

1 - S. work in lock-step throughout session.

APPENDIX I, 10/6

Definitions

S. 'happy' with pre-set pace:

5 - S. able to perform manipulative exercises and drills OR respond to questions within pause gap.

3 - About 50% 'happy' as above OR while some S. find the pre-set pace difficult at first they rapidly master the manipulation within the pause.

1 - S. unable to benefit fully from drills and exercise because pre-set pace is inappropriate for work/level.

S. able to self-correct/evaluate:

5 - S. working on own responses almost from outset of session.

3 - No more than 50% of time for self-correction/evaluation.

1 - Either lock-step throughout OR T. makes self-correction/evaluation impossible.

S. capable of self-correction/evaluation:

5 - S. make full use of AAC facilities with constant correction and repetition unguided by T. and without intervention.

3 - Some correction by all S. OR good correction by most but with limited T. intervention to encourage self-correction/evaluation.

1 - Virtually no self-correction/evaluation, although warranted by S. performance. Correction only by T. intervention.

S. frequent use of T. call:

5 - Most S. use T. call at least once.

3 - Few (30%) use T. call.

1 - One or two S. only use T. call.

S. discriminating in use of T. call:

5 - S. only use T. call for problems where solution not found in exercises or materials.

3 - Some S. use T. to solve problems where solution found in mats. OR some calls are as above.

1 - S. use T. call for minor, time-wasting or irrelevant points.

S. control over time:

5 - 100% time .....1 - 0% time

S. interest over time:

5 - 100% time .....1 - 0% time (taking control into account)

S. participation over time:

5 - 100% time .....1 - 0% time (taking control into account)

S. individualised learning over time:

5 - 100% time .....1 - 0% time.

APPENDIX I. . 11

Grid 4. : CLASS: TEACHER: TIME:

Materials used in session (cont'd) COMMENTS

Recorded materials: 2) dialogues for imitation/memorization

authentic cultural setting	5	4	3	2	1	0
natural subject matter	5	4	3	2	1	0
'useful' phrases for memorization	5	4	3	2	1	0
segments for repetition of 'memorable' length	5	4	3	2	1	0
background noise appropriate	5	4	3	2	1	0

3) other materials used:

is material used at other levels/other situations:
is hardware present for full exploitation ?:
is material compatible with other materials in terms of content/method ?:
content/time ratio:

USE OF MATERIALS IN SESSION

Degree to which T. adhered to use of materials as prescribed by textbook/ tapescript: 5 4 3 2 1 0

discrete	5	4	3	2	1	0	1	2	3	4	5	integrated
inflexible	5	4	3	2	1	0	1	2	3	4	5	flexible
reactive	5	4	3	2	1	0	1	2	3	4	5	interactive
linear-systematic	5	4	3	2	1	0	1	2	3	4	5	indexed-selective
T. controlled	5	4	3	2	1	0	1	2	3	4	5	S. controlled
imitative	5	4	3	2	1	0	1	2	3	4	5	creative
phonetic	5	4	3	2	1	0	1	2	3	4	5	semantic
structural	5	4	3	2	1	0	1	2	3	4	5	functional
devised/adapted	5	4	3	2	1	0	1	2	3	4	5	authemtic
skill-based	5	4	3	2	1	0	1	2	3	4	5	concept-based
habit-based	5	4	3	2	1	0	1	2	3	4	5	memory-based

wide variety of material available:	5	4	3	2	1	0
wide variety of material used:	5	4	3	2	1	0
wide variety of activity drill types:	5	4	3	2	1	0

Hardware Used in LL Session

Response requirement adequate for task:
LL system:
microphone:
headset:
T. has full control of system by remote control:
T. has full communication with S.: + 'S' stop when 'T' speak

functions: high speed transfer/ simultaneous S. & T. record/random access/ revolution counter/loop-repeater/multi-input/multi-programme/2 speeds/large reels for spools/pause control/'S' record indicator/writing surfaces/group facilities

Other features of LL used in session:

Functions used in actual LL session :

LL layout: Noise: Acoustics:
Dust:
Availability of other equipment:

Appendix I. 12 : EXAMPLES OF RESULTS FROM EIGHT QUESTIONNAIRES

Questionnaire 5. Name:

4. Language teaching materials: ideal profile

What features do you think good language teaching materials should display? To help you decide, I have given a list of bi-polar scales with features at either end that you might want to emphasise more or less at each level.

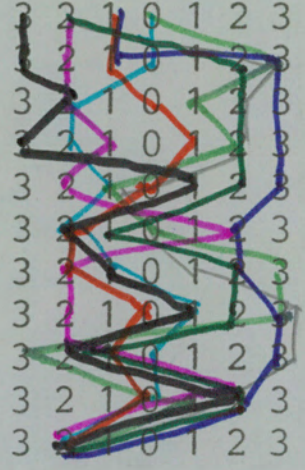
Try giving one value for each scale at each level, from +3 to -3 and record it by putting a cross through the number selected.

There are four levels of scoring:

+3/-3 = very important/essential
+2/-2 = important and useful
+1/-1 = No really firm opinion, but this side rather than the other
0 = Both equally important (please use this sparingly)

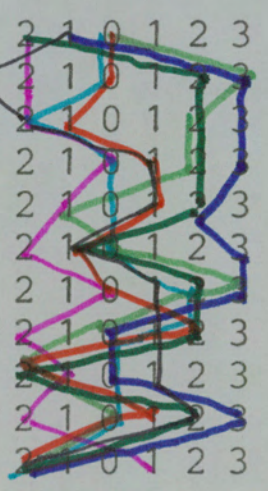
4.1 BEGINNERS

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based



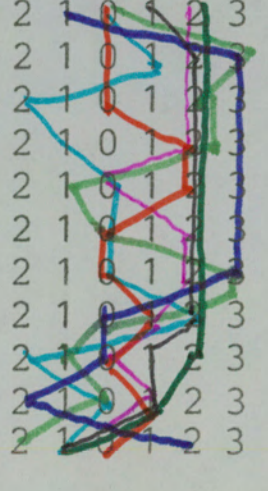
4.2 ELEMENTARY

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based



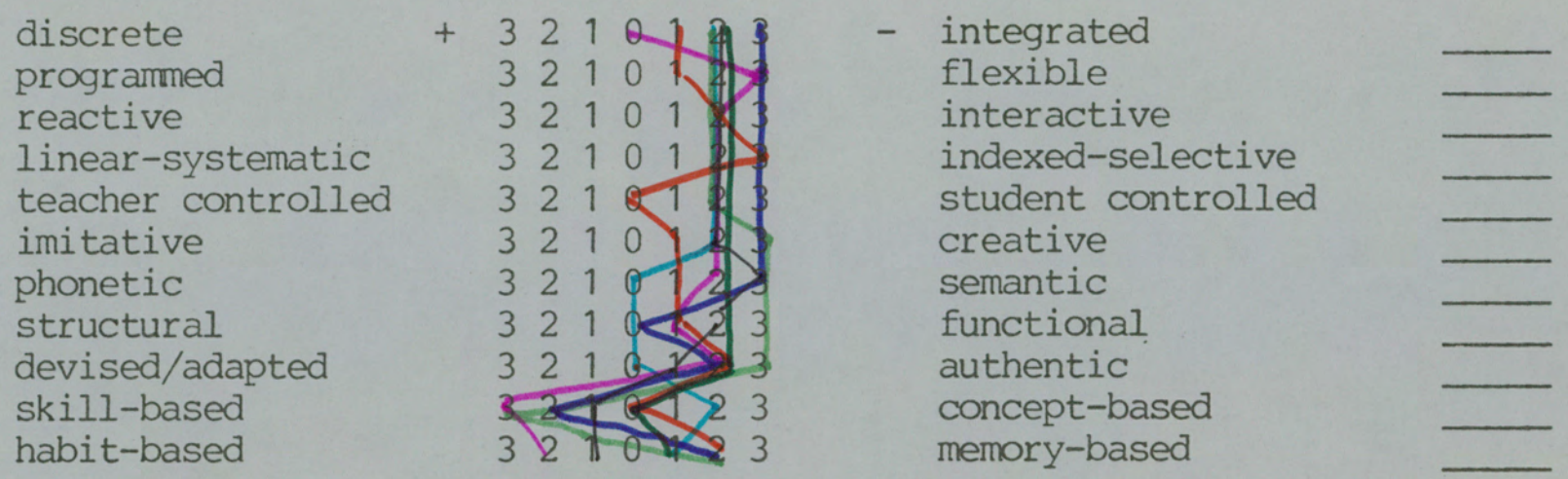
4.3 INTERMEDIATE

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based

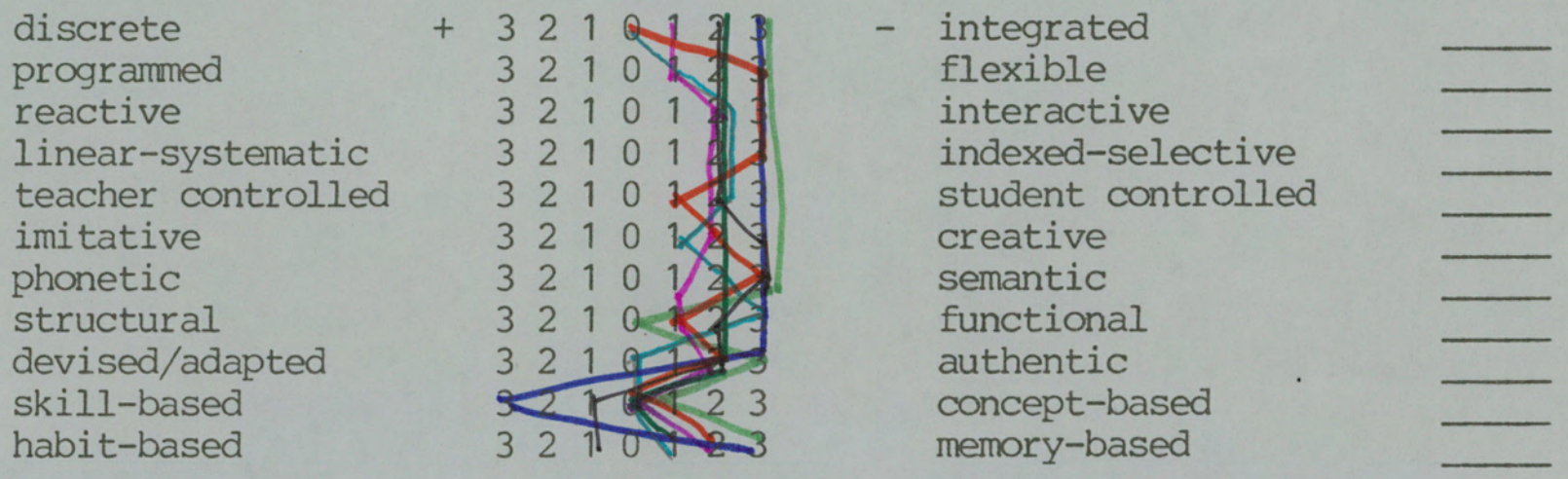


Appendix I. .12 (cont'd)

4.4 HIGH INTERMEDIATE



4.5 ADVANCED



What other features or factors go to make up good language teaching materials in your opinion:

Appendix I. 13 : EXAMPLES OF RESULTS FROM EIGHT QUESTIONNAIRES (as I. 12)

Questionnaire 7. Name:

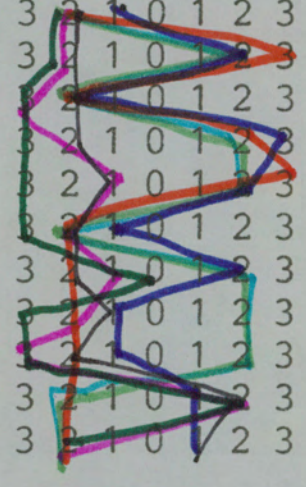
5. Language Laboratory materials: actual profile

What features do you think current LL materials display ?
Again I am using the bi-polar scale, but this time the values will be:

+3/-3	=	essential feature of all current LL materials I use
+2/-2	=	found in over 50%+of all materials I use
+1/-1	=	unsure, but this side rather than the other
0	=	both in equal proportion

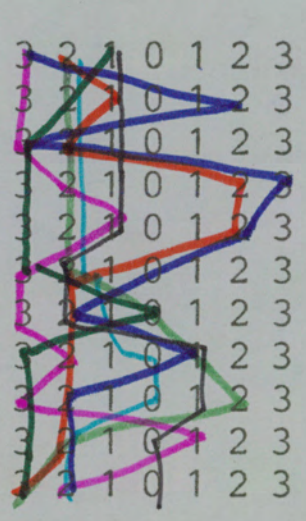
5.1 GENERAL (level unspecified)

discrete	+	-	integrated
programmed			flexible
reactive			interactive
linear-systematic			indexed-selective
teacher controlled			student controlled
imitative			creative
phonetic			semantic
structural			functional
devised/adapted			authentic
skill-based			concept-based
habit-based			memory-based



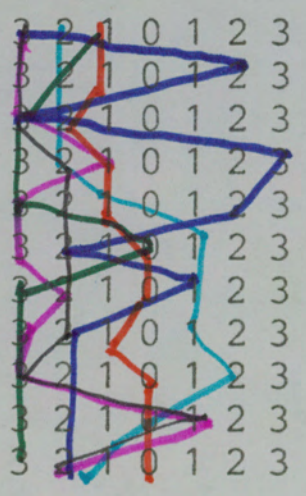
5.2 BEGINNERS

discrete	+	-	integrated
programmed			flexible
reactive			interactive
linear-systematic			indexed-selective
teacher controlled			student controlled
imitative			creative
phonetic			semantic
structural			functional
devised/adapted			authentic
skill-based			concept-based
habit-based			memory-based



5.3 ELEMENTARY

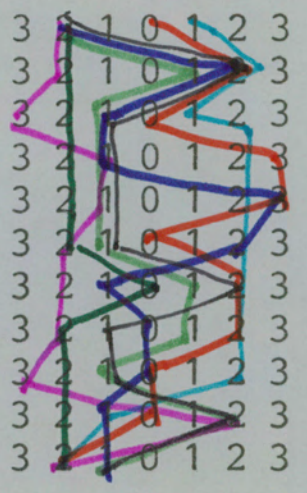
discrete	+	-	integrated
programmed			flexible
reactive			interactive
linear-systematic			indexed-selective
teacher controlled			student controlled
imitative			creative
phonetic			semantic
structural			functional
devised/adapted			authentic
skill-based			concept-based
habit-based			memory-based



Appendix I. 13 (cont'd)

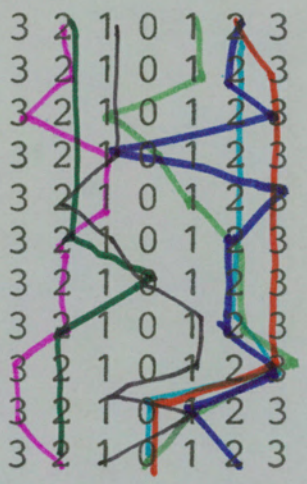
5.4 INTERMEDIATE

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based



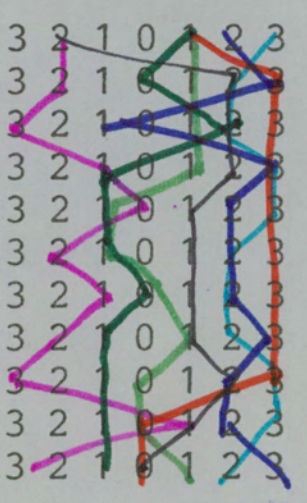
5.5 HIGH INTERMEDIATE

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based



5.6 ADVANCED

discrete	+	3 2 1 0 1 2 3	-	integrated
programmed		3 2 1 0 1 2 3		flexible
reactive		3 2 1 0 1 2 3		interactive
linear-systematic		3 2 1 0 1 2 3		indexed-selective
teacher controlled		3 2 1 0 1 2 3		student controlled
imitative		3 2 1 0 1 2 3		creative
phonetic		3 2 1 0 1 2 3		semantic
structural		3 2 1 0 1 2 3		functional
devised/adapted		3 2 1 0 1 2 3		authentic
skill-based		3 2 1 0 1 2 3		concept-based
habit-based		3 2 1 0 1 2 3		memory-based



What other features do you think are found in current LL materials:

Could you list the courses and materials you use in the LL:

GRID 1 CLASS DESCRIPTION : DATA — FIRST STUDY — Appendix I. 14.

CLASS:	1G	2G	3G	4G
CONTENT OF SESSION	Reported Questions dial/ E.F. III/42 3 phase drills	Access/Starting out dialogue/drills 4 phase drills	Present Perfect: E.F. S1; Song/ Skyhigh	Kernel Lessons Intermed 16; Pronunciation of past forms; song
OBJECTIVES	Practice all tenses +irregular past tenses + Present Perfect	practice Past tenses Statements/Negs/ Questions	Practice in manipulation of Present Perfect	Practice Present Perfect;Past contrast
TIME/TIME OF DAY	9.00-9.45 1st a.m.	9.45-10.30 2nd a.m.	11.00 3rd a.m.	11.45 4th a.m.
LEARNING EQUIPMENT	Cybervox LL	Cybervox LL	Cybervox LL	Cybervox LL
MATERIAL IN LL	Tapes+student books	Tapes + books	Tapes + books	Tapes + song sheet
PROGRESSIVE RIGOUR	Structural Progression	Structural	Structural	Structural
STUDENTS SOCIO-CULTURAL	Mixed European/Middle East	Mixed:Turkish/ Japanese/Iran/Euro	Mixed: Euro/Saudi/ Thai/Jap/East Euro	European/Algerian/ Saudi/Thai/Mexican
INTELLECT/APT. FOR LG.	O.K.	Bright/Average/Good	Good + Mixture/Mixed	Gen. O.K./Bright
MOTIVATION	Good	Good	High	High
LEVEL OF ENGLISH	Intermediate	Elementary	Upper Intermediate	Intermediate
TEACHERS ATTITUDE TO STUDENTS	Positive (substitute)	Positive	Positive	Positive
ATTITUDE TO METHOD	E.F. too mechanical	Positive	Eclectic	Positive
ATTITUDE TO LL	Positive	Mechanical problems & material too difficult spoiled session	Not too healthy with this class	Positive
LENGTH OF EXPERIENCE WITH LL	5 years	5½ years	8 years	1½ years
CULTURAL AWARENESS	-	O.K.	O.K.	O.K.
LING. & PSYCHOLING KNOWL.	University level, Cert. Ed. in psycholings.	Experience only	Experience only	Linguistics as subsid. subject
CLASS : NO. OF STUDENTS	12	9	11	17
AVERAGE AGE, MAX/MIN	-	21; -	22; twenties	27; 50+ - 19
FIRST LANGUAGE	French/German/Arabic/ Spanish	As above + French/ German	As above	As above
USE OF LL	-	Unknown	Unknown	Unknown
TEACHER NS/NNS AGE	NS 29	NS 32	NS 31	NS 23

Grid 1. Class Description: data (cont.) Appendix I. 14. (cont.)

CLASS:	5G	6G	7G	8G
CONTENT OF SESSION	Tense Drills - 4 phase pp. 26-27	K.L.Inter. 4 - 4 phase tapescript	EF 38 - 3 phase + dialogue	dictation;compre.+ questions
OBJECTIVES	practice in past by transformations	much/many; have to/ had to	anyone/someone etc.	
TIME/TIME OF DAY	9-9.45; 1st. in day.	9.45-10.30	11.00-11.45	11.45-12.20
LEARNING EQUIPMENT	Cybervox LL	Cybervox LL	Cybervox LL	Cybervox LL
MATERIAL IN LL	Teacher-record	tapes - no books	tapes + student bks.	own material
PROGRESSIVE RIGOUR	low/vague	structural	structural	n/a
STUDENTS SOCIO-CULTURAL	European/Jap./ Yemeni	European/Latin Am./ Iranian	Euro./Arab/Turkish	European /Arab
INTELLECT/APT. FOR LG.	varied/keen mostly	gen. bright/mostly good	bright/varied	good/good
MOTIVATION	high	high	high	high
LEVEL OF ENGLISH	intermediate	low inter.	low inter.	advanced
TEACHERS ATTITUDE TO STUDENTS	positive	positive	positive(not own class)	positive
ATTITUDE TO METHOD	positive(likes own drills)	positive	positive	positive (own)
ATTITUDE TO LL	positive	positive	positive with reservations	positive
LENGTH OF EXPERIENCE WITH LL	6 years	o.k.	4 years	long
CULTURAL AWARENESS	o.k.	o.k.	o.k.	o.k.
LING. & PSYCHOLING. KNOWL.	limited	limited	RSA course	Dip. TEFL
CLASS : NO. OF STUDENTS	12	13	13	10
AVERAGE AGE, MAX./MIN.	22;35-18	26; -	22; 40-18	25
FIRST LANGUAGE	Fr./Ital./Jap./Sp./Arab./ Dutch	as above	as above(Fr./Germ./ Ital. +)	Ital./Arabic
USE OF LL	Unknown	unknown	unknown	unknown
TEACHER NS/NNS AGE	NS ; 29	NS; 31	NS; 30	NS; 32

Grid 1. Class Description: data (cont.)

Appendix I.14 (cont.)

	9G	10G	11G	12G	13G
CONTENT OF SESSION	EF7; dial.+ drills	Kernel lessons Inter. 4.	Kernel lessons Plus 8. + song Gd.bye Rainbow	EF 51 Dial. + drills + song - Monday	L.C. from article + sheet with col. for figures
OBJECTIVES	practice in possessive forms	how much/how many	used to/rept speech	pres. perf./ since-for; pres. perf. continuous	spoken to written forms
TIME/TIME OF DAY	2.30-3.15	9.15-45	9.50-10.30	11.00-45	11.50-12.30
LEARNING EQUIPMENT	Cybervox LL	Cybervox LL	Cybervox	Cybervox LL	Cybervox LL
MATERIAL IN LL	tapes + student bks.	tapes(15 mins lk.-step)	tapes +script	tapes+bks+ sheet	sheet+article
PROGRESSIVE RIGOUR	structural	structural	structural/eclect.	structural	advanced work
STUDENTS SOCIO-CULTURAL	European/Arab	European/arab	European/Arab/ Thai	see 4G	European/Jap./ Mexican
INTELLECT/APT. FOR LG.	unknown/new class	o.k.	bright/v. good		bright/high
MOTIVATION	high	o.k./good	high		high
LEVEL OF ENGLISH	beginners	intermdeiate	upper inter.		advanced
TEACHERS ATTITUDE TO STUDENTS	postive	positive	positive	see 2G	see 7G
ATTITUDE TO METHOD	positive		positive		
ATTITUDE TO LL	positive (at start)	positive but cynical	positive		
LENGTH OF EXPERIENCE WITH LL	several years	7 years	6½ years		
CULTURAL AWARENESS	o.k.	o.k.	o.k.		
LING. & PSYCHOLING. KNOWL.	none		B.Ed. (lings)		
CLASS : NO. OF STUDENTS	8	12	0	see 4G	9
AVERAGE AGE, MAX./MIN.	22; 30-18		22; 28-18		20's
FIRST LANGUAGE	German/Arabic		above + Fr./Germ.		as above
USE OF LL	none; 2nd time	unknown	unknown		
TEACHER NS/NNS AGE	NS; middle aged.	NS; 30	nk; 30	see 2G	see 7G

Grid 1. Class Description: data (cont.)

Appendix I. 14 (cont.)

CONTENT OF SESSION	14G Access/Starting Out 10 + drills + pics.	15G role play. dialogues + sits.	16G EF 3. dial. + 3 phse. drills	17G K.L.Inter.4. music - Flanders/Swan	18G Tense drills pp.148-9; 4 phase rec.	19G K.L. Plus 3. + song
OBJECTIVES	going to dec/Q. forms		do/does	can't be/must be; too/to	future perf; future cont.	pres. perf. simple/ cont. vs. simple past
TIME/TIME OF DAY	2.30-3.20	9.00-45	9.45-10.30	11.00-45	11.50-12.35	2.45-3.20
LEARNING EQUIPMENT	Cybervox LL	Cybervox LL	Cybervox LL	Cybervox LL	Cybervox LL	Cybervox LL
MATERIAL IN LL	tape/coursebk.	tape/sheets	tape/bks.	tapes/scripts	teacher rec.	tapes
PROGRESSIVE RIGOUR	structural	sit./funct.	structural	str./L.C.	slight	structural
STUDENTS	see 2G.	see 6G.	see 9G.	see 5G	see 3G.	see 1G.
SOCIO-CULTURAL						
INTELLECT/APT. FOR LG.						
MOTIVATION						
LEVEL OF ENGLISH						
TEACHERS						
ATTITUDE TO STUDENTS	see 1G.	see 6G.	see 9G.	positive	positive	positive
ATTITUDE TO METHOD				positive	positive	positive
ATTITUDE TO LL				positive	positive	positive on whole
LENGTH OF EXPERIENCE WITH LL				long	18 months	3 years
CULTURAL AWARENESS				o.k.	o.k.	o.k.
LING. & PSYCHOLING. KNOWL.				post. grad. level.	undergrad. lings.	limited
CLASS : NO. OF STUDENTS	see 2G.	see 6G.	see 9G.	see 5G.	see 3G.	see 1G.
AVERAGE AGE, MAX./MIN.						
FIRST LANGUAGE						
USE OF LL						
TEACHER NS/NNS AGE	see 1G.	see 6G.	see 9G.	NS; 32	NS; 32	NS; 34

Grid 1. Class Description: data (cont.)

Appendix I.14. (cont.)

CONTENT OF SESSION	20G What a Story 17.	21G as for 7G.	22G EF 56, dial. + 3 phse. drills + KL+ Int. LC 5.	23K Bellcrest File 4; active listening	24G EF 26, dial + 3 phse drills	25G FCE interviews + situations
OBJECTIVES	Follow from 11 G.	as for 7G.	3rd. condit./note-taking3summary	Q's in written mode, answers spoken	superlatives	Q.'s on photos etc.
TIME/TIME OF DAY	9.00-45	9.45-10.30	11.00-45	11.55-12.35	2.50-3.20	9.00-45
LEARNING EQUIPMENT	Cybervox LL	Cybervox LL	Cybervox LL	Tandberg LL	Cybervox LL	Cybervox LL
MATERIAL IN LL	bks./tapes	as for 7G.	tape/bks./sheets	tape/bks./sheets	tapes/bks.	teacher rec.
PROGRESSIVE RIGOUR	dev. of 11G.	as for 7G.	str./LC skills	skills	structural	n/a
STUDENTS SOCIO-CULTURAL	see 11G.	see 7G.	European	European/Jap./ Arab.	see 10G.	see 1G.
INTELLECT/APT. FOR LG.			bright/good	o.k./good		
MOTIVATION			high	high		
LEVEL OF ENGLISH			advanced	upper inter.		
TEACHERS ATTITUDE TO STUDENTS	see 11G.	see 7G.	see 10G.	positive	see 10G.	positive
ATTITUDE TO METHOD				positive		positive
ATTITUDE TO LL				positive		positive
LENGTH OF EXPERIENCE WITH LL				long		long
CULTURAL AWARENESS				o.k.		o.k.
LING. & PSYCHOLING. KNOWL.						post. grad.
CLASS : NO. OF STUDENTS	see 11G.	see 7G.	12	5	see 10G.	see 1G.
AVERAGE AGE, MAX./MIN.			20's	35		
FIRST LANGUAGE				as above		
USE OF LL			yes			
TEACHER NS/NNS AGE	see 11G.	see 7G.	NS; 30	NS	see 10G.	NS; 39

Grid 1. Class Description: data (cont.)

Appendix I. 14. (cont.)

CONTENT OF SESSION	26K Kernel Inter. 9 - 4 phse. drills	27K EF 54, dial. + 3 phse. drills	28K EF 34, dial. + 3 phse. drills	29G pron.pract. class text- see 5G.	30K Kernel Inter. 10 - drills 4 phase	31K Kernel Plus, 4; Tapescript 1 - 4
OBJECTIVES	going to - all forms	can't be/ must be	neither/nor; so must/do/ should/ought	pron. pract.	shall I/ would you	so do I/neither do I
TIME/TIME OF DAY	9.50-10-30	11.00-45	12.00-35	9.00-45	10-45-11-30	11.00-45
LEARNING EQUIPMENT	Tandberg LL	Tandberg LL	Tandberg LL	Cybervox LL	Tandberg LL	Tandberg LL
MATERIAL IN LL	tape	tape/bks.	tape/bks	teacher rec.	tape only	tape only
PROGRESSIVE RIGOUR	structural	structural	structural	none	structural	structural
STUDENTS SOCIO-CULTURAL	mature; Europ./Jap.	European/arab	see 23K.	see 5G.	European/ Jap.	see 27 K.
INTELLECT/APT. FOR LG.	high/good	good/good			high/good	
MOTIVATION	high	high			high	
LEVEL OF ENGLISH	elem./inter.	beg.			elem./low inter.	
TEACHERS ATTITUDE TO STUDENTS	positive	positive	see 23K.	positive	positive	see 27K.
ATTITUDE TO METHOD	positive	pos./struc'ist.		positive	positive	
ATTITUDE TO LL	positive	v. positive		positive	positive	
LENGTH OF EXPERIENCE WITH LL	10 years	long		o.k.	long	
CULTURAL AWARENESS	o.k.	o.k.		o.k.	o.k.	
LING. & PSYCHOLING. KNOWL.	Dip. TEO	RSA+ P.G.		limited	post-grad.	
CLASS : NO. OF STUDENTS	4	4	see 23K.	see 5G.	4	see 27K.
AVERAGE AGE, MAX./MIN.	32	35			30's	
FIRST LANGUAGE	Ital./Fr./ Jap./S.-C.	Arab/Fr./ German				
USE OF LL	no	no			no	
TEACHER NS/NNS AGE	NS	NS	see 23K.	NS	NS	see 27K.

Grid 1. Class Description: data (cont.) Appendix I. 14. (cont.)

ONTENT OF SESSION	32K Bellcrest 6.; dial.+ drills 1 - 2	33G LC Q's + A's from student	34K British Council Lg. Unit 6A	35K EF 48, dial. + drills; part EF 51	36G Access/Starting Out- drills 1 & 2 + song	37G Kernel Inter. 11, tapescript + song
BJECTIVES	discussion skills	forming/ ans. q's	past perf.	passive/pres. perf.	pres. perf.	
IME/TIME OF DAY	12.00-35	9.15-45	11.00-45	12.00-35	2.30-3.15	9.00-45
EARNING EQUIPMENT	Tandberg LL	Cybervox LL	Tandberg LL	Tandberg LL	Cybervox LL	Cybervox LL
ATERIAL IN LL	tape/bks	Inter. Stories	tape only	tape/bks.	tape/bks.	tapes/song sheet
ROGRESSIVE RIGOUR	skills/funct.	for Repro. 22	structural	structural	str./sit.	structural
TUDENTS	see 23K.	see 10G.	see 27K.	see 23K.	see 2G.	see 15 and 6
OCIO-CULTURAL						
NTELLECT/APT. FOR LG.						
OTIVATION						
EVEL OF ENGLISH						
EACHERS						
TTITUDE TO STUDENTS	see 23K	see 10G.	see 27K.	see 23K.	positive	see 15 and 6
TTITUDE TO METHOD					positive	
TTITUDE TO LL					positive	
ENGTH OF EXPERIENCE WITH LL					adequate	
ULTURAL AWARENESS					o.k.	
ING. & PSYCHOLING. KNOWL.					none	
LASS : NO. OF STUDENTS	see 23K.	see 10G.	see 27K	see 23K.	see 2G.	see 15 and 6
VERAGE AGE, MAX./MIN.						
IRST LANGUAGE						
SE OF LL						
EACHER NS/NNS AGE	see 23K.	see 10G.	see 27K.	see 23K.	NS	see 15 and 6

Grid 1. Class Description: data (cont.)

Appendix I. 14. (cont.)

CONTENT OF SESSION	38K Kernel Inter. 15 4 phase drills	39K EF 40, dial. and ex. C.	
OBJECTIVES		past perf. I'd been	
TIME/TIME OF DAY	9.55-10.30	11.00-45	
LEARNING EQUIPMENT	Tandberg LL	Tandberg	
MATERIAL IN LL	tape only	tape/bks	
PROGRESSIVE RIGOUR	structural	see 27K	
STUDENTS SOCIO-CULTURAL	see 26K		
INTELLECT/APT. FOR LG.			
MOTIVATION			
LEVEL OF ENGLISH			
TEACHERS ATTITUDE TO STUDENTS	see 26K	see 27K	
ATTITUDE TO METHOD			
ATTITUDE TO LL			
LENGTH OF EXPERIENCE WITH LL			
CULTURAL AWARENESS			
LING. & PSYCHOLING. KNOWL.			
CLASS : NO. OF STUDENTS	see 26K	see 27K	
AVERAGE AGE, MAX./MIN.			
FIRST LANGUAGE			
USE OF LL			
TEACHER NS/NNS AGE	see 26K	ee 27K	

APPENDIX I.15, I.16 I.18. FIRST STUDY : DATA AND ANALYSIS OF DATA:1.

Assumed advantage	Grid conditions	S/A/J	SESSIONS 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Each student can answer all q's and work all the time	LL work coordinated		3	5	3	3	3	4	3	5	3	3	3	3	4	4	3
	T 'happy' use of LL	S/A/J	3	3	5	5	5	4	4	5	3	5	5	3	5	5	5
	T likes using LL	/J	4	2	2	4	3	5	2	5	2	3	5	3	5	5	5
	T experience	S/A	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5
	Mat. indexed	S/	5	4	5	5	0	5	5	0	5	4	5	0	5	5	5
	Start up time short	S/	4	5	5	5	5	5	5	5	5	4	5	5	4	5	4
	S interest/time	/J	5	4	5	4	3	4	3	5	3	4	5	4	4	4	5
	S participation/time	/J	5	4	5	4	3	4	3	5	3	4	5	4	4	4	5
	LL work purpose-designed	S/A	5	5	3	3	3	4	3	4	3	4	3	4	4	3	3
Each S. responsible for own performance	All S happy manip.	S/A/J	4	2	3	4	2	3	3	4	2	2	3	3	5	3	4
	All S. clear objectives	S/A/J	4	5	4	5	3	4	3	5	2	5	5	3	5	5	5
	Frequent T-call	J	2	2	2	1	2	1	2	1	1	1	2	3	2	1	3
	Discrim. T-call	S/A/J	1	2	2	0	3	0	2	0	0	0	0	5	5	0	4
	Pedagogical monitor	A/J	2	2	4	3	4	2	3	1	2	2	4	2	1	1	2
	Anal/diag. pron. errors	S/A/J	4	3	3	3	2	3	1	1	1	1	4	3	0	2	2
	Anal/diag. str. errors	S/A/J	2	3	3	3	3	2	2	1	2	1	3	3	0	2	1
	Instructional monitor	S/ /J	4	4	2	3	2	4	4	2	4	3	2	4	3	3	4
S. can listen critically to own voice	All S. able crit.	A/J	2	5	4	4	4	3	3	5	1	3	4	5	3	3	4
	All S. capable crit.	A/	2	2	2	2	2	2	2	4	1	2	2	2	5	2	4
	S. tend underlearn	A/	3	3	3	2	4	3	4	2	3	4	3	5	0	3	1
	S. tend overlearn	S/	1	1	1	1	1	1	1	2	0	1	1	1	0	1	1
S. can work at own pace	All S. 'happy' mech.	S/ /J	5	4	4	4	4	4	4	4	2	4	4	4	5	4	5
	All pre-recorded	S/ /J	1	1	1	1	0	1	1	0	1	1	1	4	1	1	1
	S. control/time	J	3	3	4	4	4	3	4	3	3	3	5	5	3	4	4
	S. able to vary pace	S/ /J	1	1	0	1	2	3	2	1	1	3	4	5	3	3	4
	S. 'happy' pre-set pace	/J	4	3	3	4	4	3	3	4	3	3	3	0	0	4	4
	Variety pace	/J	1	2	1	1	1	1	1	5	1	1	2	2	2	2	3
T. can deal with individual students	T. monitor S./time	A/J	3	5	4	3	3	4	3	3	4	4	4	5	3	4	4
	Individ-general monitor	S/ /J	2	1	1	2	1	1	1	1	2	3	3	1	1	1	2
LL can provide variety of programmes & activities	Rec. mats. integrated	S/ /J	1	2	3	2	1	3	1	4	2	2	2	2	4	4	3
	Variety of materials	/J	2	1	2	2	2	2	1	4	1	1	2	2	3	3	3
	Variety of activities	/J	2	1	2	3	1	2	2	4	1	1	2	2	3	2	3
	LL functions exploited	/J	4	3	3	3	3	3	3	4	2	3	3	3	2	3	4
S. can work in privacy of booth	Acoustics/noise	/J	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓

Assumed Advantage	Grid Conditions	S/A/J	SESSIONS 16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Each student can answer all q's and work all the time	LL work coordinated	/J	2	4	3	3	2	1	5	5	3	0	3	5	3	4	4
	T 'happy' use of LL	S/A/J	3	5	3	3	5	3	5	4	5	5	4	3	4	4	3
	T likes using LL	/J	3	5	4	4	5	4	5	5	5	5	3	5	4	3	5
	T experienced	S/A	3	5	3	5	5	4	5	5	5	5	5	5	5	4	5
	Mat. indexed	S/	5	5	5	5	2	5	5	4	5	0	5	0	5	0	5
	Start-up time short	S/	4	5	3	5	4	5	5	4	5	5	5	5	5	5	4
	S interest/time	/J	3	5	5	5	5	5	5	5	5	5	4	5	5	4	5
	S participation/time	/J	4	5	5	5	5	5	5	5	5	5	5	5	4	4	5
	LL work purpose-designed	S/A	3	4	2	3	4	3	4	5	3	5	3	5	3	3	4
Each S. responsible for own performance	All S happy manip.	S/A/J	3	4	4	3	5	4	5	5	4	4	4	5	4	4	3
	All S clear objectives	S/A/J	3	4	5	4	4	3	5	5	4	5	4	5	4	5	4
	Frequent T-call	/J	2	1	2	2	2	1	1	1	1	2	1	2	1	1	1
	Discrim. T-call	S/A/J	1	0	1	3	5	0	0	0	0	4	0	2	0	0	1
	Pedagogical monitor	A/J	1	2	3	2	1	3	3	1	3	3	4	4	4	3	3
	Anal/dial. pron. errors	S/A/J	2	3	3	3	0	5	3	0	1	2	1	3	3	3	1
	Anal/dial. str. errors	S/A/J	2	1	2	1	0	1	2	1	1	3	2	3	3	0	3
	Instructional monitor	S/ /J	5	2	3	4	3	2	3	2	3	3	2	2	2	3	2
S. can listen critically to own voice	All S. able crit.	A/J	4	4	3	4	4	3	3	4	4	4	3	5	3	3	3
	All S. capable crit.	A	2	4	3	3	0	2	3	0	3	3	3	4	2	2	2
	S. tend to underlearn	A	4	3	4	4	1	3	1	1	3	1	3	1	3	2	3
	S. tend to overlearn	S	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
S. can work at own pace	All S. 'happy' mech.	S/ /J	2	4	3	4	5	3	5	5	5	3	4	5	4	4	3
	All pre-recorded	S/ /J	1	1	1	5	1	1	1	1	1	0	1	5	1	1	1
	S. control/time	/J	4	3	3	4	4	3	3	4	4	4	3	5	4	3	3
	S. able to vary pace	S/ /J	3	4	3	4	3	3	3	4	3	4	3	5	3	3	3
	S. 'happy' pre-set pace	J	3	3	4	0	4	3	4	0	3	3	4	0	3	4	3
	Variety pace	J	1	3	1	1	2	1	3	1	1	4	1	1	1	1	3
T. can deal with indiv. students	T. monitor S./time	A/J	4	4	4	4	2	3	4	2	4	4	4	5	4	4	3
	Indiv.-general monitor	S/ /J	1	1	1	1	1	3	1	1	1	3	1	1	1	1	1
LL can provide variety of programmes & activities	Rec. mats. integrated	S/ /J	2	4	3	3	3	3	3	3	3	3	3	3	3	3	3
	Variety of materials	J	1	3	1	2	2	1	3	1	2	4	2	1	2	1	3
	Variety of activities	/J	1	3	1	2	2	1	3	1	2	4	1	1	2	1	3
	LL functions exploited	/J	3	4	3	3	3	3	3	3	3	4	3	5	3	4	3
S. can work in privacy of booth	Acoustics/noise	/J	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Assumed advantage	Grid conditions	S/A/J	SESSIONS 31	32	33	34	35	36	37	38	39
Each student can answer all q's and work all the time	LL work coordinated	J	5	5	1	5	3	3	3	3	5
	T 'happy' use of LL	S/A/J	3	3	4	3	4	4	4	3	3
	T likes using LL	J	5	4	5	5	4	3	4	5	5
	T experienced	S/A	5	5	5	5	5	4	5	5	5
	Mat. indexed	S	0	5	0	0	5	4	5	5	0
	Start-up time short	S	5	5	5	5	5	5	5	5	5
	S. interest/time	J	5	5	5	5	5	4	5	4	5
	S. participation/time	J	5	4	5	5	4	4	5	4	5
	LL work purpose-designed	S/A	5	4	4	4	4	3	4	3	5
Each S. responsible for own performance	All S. happy manip.	S/A/J	4	4	2	5	5	3	4	3	5
	All S. clear objectives	S/A/J	5	5	2	5	4	3	4	4	5
	Frequent T-call	J	2	1	3	2	1	1	2	1	1
	Discrim. T-call	S/A/J	1	0	5	1	0	0	5	0	0
	Pedagogical monitor	A/J	5	5	1	5	4	3	2	4	5
	Anal/dial. pron. errors	S/A/J	3	3	1	3	1	3	1	3	5
	Anal/dial. str. errors	S/A/J	5	3	1	3	1	3	1	3	5
	Instructional monitor	S/ /J	1	1	4	1	2	3	4	2	1
S. can listen critically	All S. able crit.	A/J	5	4	3	5	3	3	3	3	5
	All S. capable crit.	A	4	3	2	4	2	2	2	2	4
	S. tend underlearn	A	4	2	3	1	2	3	3	3	1
	S. tend overlearn	S	1	1	1	1	1	1	1	1	1
S. can work at own pace	All S. 'happy' mech.	S/ /J	5	5	3	5	5	3	4	5	5
	All pre-recorded	S/ /J	5	1	1	5	1	1	1	1	5
	S. control/time		5	4	4	5	3	4	3	3	5
	S. able to vary pace	S/ /J	5	4	3	5	3	3	3	3	5
	S. 'happy' pre-set pace	J	0	4	4	0	3	3	4	2	0
	Variety pace	J	1	2	2	2	1	1	2	1	1
T. can deal with indiv. students	T. monitor S./time	A/J	5	4	3	5	4	4	4	5	5
	Individual/general monitor	S/ /J	1	1	1	1	2	1	1	1	1
LL can provide variety of programmes and activities	Rec. mats. integrated	S/ /J	2	3	3	3	3	5	3	3	3
	Variety of materials	J	3	1	1	2	2	1	3	3	1
	Variety of activities	J	3	3	2	3	2	1	2	2	1
	LL functions exploited	J	3	3	4	3	3	1	3	3	3
S. can work in privacy of booth	Acoustics/noise	J	✓	✓	✓	✓	✓	✓	✓	✓	✓

APPENDIX I.17 : DATA

Observation Grid 4 : Materials as used in LL sessions.

1. Scores of bi-polar scales (see Appendix 11)

Session number	Score	Session number	Score
1	+26	21	+17
2	+21	22	+33/-11
3	+30	23	-14
4	+18	24	+31
5	+32	25	-15
6	+24	26	+17
7	+28	27	+22
8	- 8	28	+26
9	+30	29	+23
10	-	30	+13
11	+18	31	+14
12	+27	32	+12
13	+ 1	33	-14
14	+25	34	+18
15	+ 1	35	+19
16	+31	36	+22
17	+23	37	+ 9
18	+23	38	0
19	+23	39	+25
20	-12		

2. Materials used in LL sessions observed

English Fast (Books 1 - 4); Access to English (Starting Out and Getting On); Kernel Lessons Intermediate (Tapescript); Kernel Lessons Plus (Tapescript, intensive listening); British Council/Longman Language Units (dialogues and drills); Cook - Active Intonation; English for Business - The Bellcrest File; Own materials (held with Grid 4 raw data); Mr Monday (songs); Skyhigh (songs).

APPENDIX I.18. ANALYSIS OF DATA : FIRST STUDY

See Appendix I.15 and I.16.

APPENDIX I.19. GRID 1 : SECOND STUDY

GRID 1 : CLASS DESCRIPTION of class ..... with ..... at .... on .....

Learning:
- Content of course:
- Objectives:
- Time:
- Frequency:
- Learning environment:
- Material:
- Progressive rigour:

Students:
- Socio-cultural:
- Intellect:
- Aptitude: 1. for learning:
  2. for language learning:
- Motivation:
- Level of L2:

Teacher:
- Attitude to students:
- Attitude to method:
- Attitude to LL:
- Length of experience with LL:
- Cultural awareness:
- Linguistic and psycholinguistic knowledge:

Class:
- Number of students:
- Average age: max. age: min. age:
- Class level:
- L 1's
- Use of LL before:

Teacher native speaker/non-native speaker

Teacher's age:

APPENDIX I.20. GRID 2 : SECOND STUDY

GRID 2: OBSERVATION OF CLASS ..... with ..... at ..... on .....

LAB. SESSION: circle appropriate alternatives

integrated/supplementary
class mode/library mode
supportive/initial
tape only/multi-media/realia/printed matter
cognitive/manipulative

TEACHER'S USE OF LL DURING SESSION: Circle appropriate number using definition sheet.

T. 'happy' use of LL	5 4 3 2 1 0
T. likes using LL	5 4 3 2 1 0
T. experiences in LL use	5 4 3 2 1 0
Objectives of session explicit	5 4 3 2 1 0
Start-up time short	5 4 3 2 1 0
Material indexed	5 4 3 2 1 0
LL work co-ordinated with class work	5 4 3 2 1 0
LL work purpose-designed	5 4 3 2 1 0
LL functions exploited	5 4 3 2 1 0
All pre-recorded	5 4 3 2 1 0
Variety of materials	5 4 3 2 1 0
Variety of activities	5 4 3 2 1 0
Variety of pace	5 4 3 2 1 0
Choice of materials	5 4 3 2 1 0
Choice of pace	5 4 3 2 1 0
T. control of pauses	5 4 3 2 1 0
Recorded materials integrated with other materials in LL	5 4 3 2 1 0
teacher monitors students/time	5 4 3 2 1 0
Pedagogical monitoring/time	5 4 3 2 1 0
Instructional monitoring/time	5 4 3 2 1 0
Monitoring from individual to general	5 4 3 2 1 0
Teacher makes notes of student errors	5 4 3 2 1 0
Analysis and diagnosis of student pronunciation errors	5 4 3 2 1 0
Analysis and diagnosis of student structural errors	5 4 3 2 1 0
Teacher feed-in of supplementary materials	5 4 3 2 1 0

APPENDIX I.21. GRID 3 : SECOND STUDY

GRID 3: OBSERVATION OF CLASS ..... with ..... at ..... on .....

STUDENTS' USE OF LL DURING SESSION: Circle appropriate number using definition sheet.

		COMMENTS
All students clear as to pedagogical function of LL	5 4 3 2 1 0	
All S. 'happy' manipulatively	5 4 3 2 1 0	
All S. 'happy' mechanically	5 4 3 2 1 0	
S. tend to 'overlearn'	5 4 3 2 1 0	
S. tend to 'underlearn'	5 4 3 2 1 0	
All S. clear as to objectives of session	5 4 3 2 1 0	
S. able to vary pace	5 4 3 2 1 0	
S. 'happy' with pre-set pace	5 4 3 2 1 0	
S. able to self-correct/evaluate	5 4 3 2 1 0	
S. capable of self-correcting/ evaluating	5 4 3 2 1 0	
S. frequent use of T. call	5 4 3 2 1 0	
S. discriminating in use of T. call	5 4 3 2 1 0	
S. control 100%/time	5 4 3 2 1 0	
S. interested/time	5 4 3 2 1 0	
S. participating/time	5 4 3 2 1 0	
S. individualised learning/time	5 4 3 2 1 0	

HARDWARE USED IN LL SESSION

Response requirement adequate for task:

LL system: yes/no
microphone: yes/no
headset: yes/no

T. has full remote control: yes/no

'S' stop when T. intercom.: yes/no

Functions available: high-speed transfer/simultaneous S. & Y. record/random access revolution counter/loop-repeater/multi-input/ multi-programme/two speeds/large reels for spools/ pause control/'S' record indicator/writing surfaces/ group & conference facilities

Functions used in LL session:

LL layout: Wall facing/rows with sightlines/rows without sightlines

Noise: yes/no acoustics: good/OK/poor dust: yes/no

Availability of other equipment: easy/difficult

APPENDIX I.22. GRID 4 : SECOND STUDY

GRID 4: OBSERVATION OF CLASS ..... with ..... at ..... on

MATERIALS USED IN LL SESSION: Circle appropriate choice(s).

COMMENTS

Variety of material available at this level: yes/no
Prepared for LL use/prepared for textbook/multi-purpose
Published material/in-house material/scripts/teaching notes

Production factors:		
	clarity	good/adequate/poor
	intonation	good/adequate/poor
	tone	good/adequate/poor
	speed	good/adequate/poor
	noise	good/adequate/poor
	accent	good/adequate/poor
	intervals	good/adequate/poor

Recorded materials: 1. exercises/drills

Compatible with other materials	yes/no/unclear
Unamgibuous instructions	yes/no/unclear
Str. content controlled/graded	yes/no/unclear
Changes from segment to segment controlled/graded	yes/no/unclear
Sufficient examples of str. pattern before change of pattern	yes/no/unclear
Single correct response	yes/no/unclear
Vocabulary selected/graded	yes/no/unclear
Sounds well-related to material accompanying	yes/no/unclear
Variety of drill type	yes/no/unclear

2. dialogues for imitation/memorization/role-playing

Authentic cultural setting	yes/no/unclear
Natural subject matter	yes/no/unclear
Useful phrases for memorization	yes/no/unclear
Segments for repetition of 'memorable' length	yes/no/unclear
Background noise appropriate	yes/no/unclear

3. other materials used

Is material used at other levels/in other situations	yes/no/unclear
Is hardware present for full exploitation	yes/no/unclear
Is content/time ratio adequate	yes/no/unclear

Differential index: Circle appropriate number on each scale using definition sheet.

discrete	+ 3 2 1 0 1 2 3 -	integrated	_____
inflexible	3 2 1 0 1 2 3	flexible	_____
reactive	3 2 1 0 1 2 3	interactive	_____
linear-systematic	3 2 1 0 1 2 3	indexed-selective	_____
T. controlled	3 2 1 0 1 2 3	S. controlled	_____
imitative	3 2 1 0 1 2 3	creative	_____
phonetic	3 2 1 0 1 2 3	semantic	_____
structural	3 2 1 0 1 2 3	functional	_____
devised/adapted	3 2 1 0 1 2 3	authentic	_____
skill-based	3 2 1 0 1 2 3	concept-based	_____
habit-based	3 2 1 0 1 2 3	memory-based	_____

Will materials used help meeting teaching objectives in terms of skills, content, grading ? yes/no/unclear

Recording 5

BOROS 1.

If we attempt to elucidate these three elements metaphysically and to sketch in the ontology contained implicitly in the doctrine of original sin but never examined and set out coherently according to its various stresses, we feel bound to turn to the world of concents elaborated by recent philosophy in its rediscovered interest in everything concerning the person. Fichte long since enunciated an idea that has since become axiomatic : "Only among men does man become a man". Existence comes to itself in the milieu of being-with and being-together. This structure of relationships with one's fellows has been brought right to the forefront of philosophical thought in the last thirty or forty years. Its fundamental concept of being-with has two closely related meanings which are, however, as concerns their formal content, radically different. Only the second of these is of interest to us here.

The first, more generally used meaning of 'being-with' is the existential one: the intimate involvement of men with one another which has its origin in the free creation of relationships. The human person is not a finished dimension ready for use: it is an event. The person builds itself up in and out of its encounters. Out of its existence there rises up an urge to engage in communication with other existences. To begin with, this is a vague, almost imperceptible movement outwards, but in the course of the encounters that actually occur, this basic movement gradually achieves coherence along certain lines. It makes for itself a centre of being and emerges to consciousness of itself. In this process there slowly appears what we may call the personal centre. It is only in encounter and the freely chosen being with another, arising out of this encounter, that our existence grows into being a real person, i.e. into being simpliciter. The person as a free self-positing is not yet in being: it is non-existent until it is formed in a personal fellowship

Recording 5 : BOROS 1. (cont'd)

and communion, in the final analysis, in love. In the gift and as gift, we become a person, i.e., as the other's gift we begin to be.

Recording 6

Fred telephoned his wife I've managed to get free tickets for the theatre tonight he told her meet me outside the office we'll have something to eat and then go on to the theatre - fred's wife was delighted it was quite a while since she had been to the theatre which she liked very much she met her husband as they had arranged they had dinner and got to the theatre in good time - at the entrance fred took out his wallet to get the tickets it's very strange he said they aren't here try your pockets suggested his wife but the tickets weren't there either - then fred looked very embarrassed what's the matter asked his wife well fred explained I remember what I did with the tickets I put them in my briefcase but because I wasn't coming home I left it in the office.

Recording 7

Radio 4 - nine o'clock news - fifth of december 1979.
BBC radio news at nine o'clock - doctor waldheim of the united nations is now leading the diplomatic battle to release the hostages in iran - the australians say that one hundred and fifty vietnamese refugees on a tanker in darwin are britain's responsibility - it's now clear that the united nations secretary general doctor kurt waldheim is becoming the main hope for the americans in securing the release of the hostages in tehran - this much seems to have emerged following the UN security councils unanimous resolution last night urging iran to end the embassy takeover and giving doctor waldheim a free hand to deal with the crisis as he sees fit - the students occupying the embassy have rejected the security councils resolution repeating that nothing can be done unless the shah is returned to iran - but doctor waldheim is hoping that some kind of dialogue can be established with the authorities in tehran - a british tanker that rescued one hundred and fifty vietnamese refugees from their sinking boat in the java sea is now at anchor in darwin in north australia while the immigration department there decides what to do next - the immigration minister has said that as the tanker the entalina is british registered the boat people are the responsibility of britain and he said he's waiting to hear from the british government but while the authorities debate the issue there seems to be no end to the refugees harrowing tale of misery.

Recording 8

"BBC radio four wednesday nineteenth december nineteen seventy nine - BBC radio now at nine o'clock - another letter bomb has been found it was at paddington sorting office in london - misses thatcher is on her way home from the united states after calling for firm action from western nations to meet the challenge of the nineteen eighties - the americans now say that military action may be taken against iran if the embassy hostages are put on trial - another letter bomb has been found the fourth this week - it turned up in the paddington district sorting office in london - according to a spokesman at the sorting office the packet was about the thickness of a book and had been posted in belgium which would make it virtually identical with the three other devices already found - he added that it had a london address on it but wouldn't say where it was - police were called in and the device is being examined by experts - the prime minister is now on her way home after her two day visit to the united states before she left misses thatcher made a major speech on east west relations which our correspondant in washington says would have transformed her in american eyes into a figure of considerable importance to the western world - she said the time had come for the west to substitute action for introspection and she called on the western democracies to meet the challenge of the nineteen eighties - problems were daunting but the action needed to be firm calm and concerted neither weakness nor anger nor despair would do".

Recording 9

BOROS 2.

In the hypothesis of a final decision, man in the act of death achieves complete identification with himself, with nothing left outside or over. He reaches in the order of being a state of "no remainder" : what is personal in his essence can exercise itself to the full and dispose of the whole of existence either for or against God. The whole human reality carried along on the flood tide of what is personal enters into this decision. The nature of the man concerned is completely marked, impregnated; and in his existence nothing remains that has not been assimilated into this total self-understanding. Accordingly, man in death enters a sphere of being into which no disunion can follow him. The man now concentrates himself fully as a person and is no more distracted by what is outside, what is antecedent to his decision, by the world. In death existence reaches that total intensity and centrality of the fact of being a person that makes possible the complete concentrating of all the man's forces without exception into his decision. This then separates him at one stroke from all that had been antecedent to this decision. So, in this way, man's metaphysical dissination is done away with, and consequently any sort or trace of existentiary being-with is finally extruded from his existence. But this means that, at the same time, his state of original sin is abolished. How does this happen ?

This question is posed in the most radical manner possible in the hypothesis of a man's dying still with the traces of uneffaced original sin. This man is not completely centred, as we have just shown, on his being a person. But what does this mean for his original sin ? By becoming completely itself in death his person becomes open to God; this man is now able to decide about his whole existence in God's sight.

Recording 9 : BOROS 2 (cont'd)

If he makes a negative decision, he sets himself up, with the whole fullness of his person, in rebellion against God and exacerbates his state of original sin by an actual sinfulness personally accepted and fully exercised. The state of 'simple' original sin is abolished in him because it is personally assumed. He is damned, not on account of original sin alone, but because of its personal putting into act.

Recording 10

The North Wind (Synthetic Speech)

The North Wind and the Sun were disputing which was the stronger, when a traveller came along wrapped in a warm cloak. They agreed that the one who first succeeded in making the traveller take his cloak off should be considered stronger than the other. Then the North Wind blew as hard as he could, but the more he blew the more closely did the traveller fold his cloak around him; and at last the North Wind gave up the attempt.

APPENDIX II.3. Listening Test Battery : Subjective Estimate Grading Sheet.

Please do not think that this is a test of your ability in English. It is an experiment to see whether some types of materials can help you understand English better. It is therefore a test of materials, not a test of your English comprehension.

In the following test, you will hear nine recordings of spoken English. As you listen, try to follow what you hear as accurately as possible. You may wish to say the words to yourself silently or quietly, or to visualize the words in your mind. If you find it difficult to follow at any point, do not stop, but continue as best you can to the end.

There will be a short pause at the end of each recording for you to mark the score for intelligibility and understanding for that recording.

At the end of the recordings, you will be asked to listen to them again. This time, try to repeat what you hear into the microphone as you hear it. In other words, try to follow what you hear by saying the words aloud, that is, by 'shadowing'. There will be no pauses this time. If you find it difficult, do not stop, but repeat what you think you hear and continue to the end of the recording.

Intelligibility / Understanding

I: 100% = able to follow completely
U: 100% = full understanding

I: 75% = able to follow almost completely, with occasional omissions and difficulties
U: 75% = less than confident understanding

I: 50% = able to follow but with frequent omissions and difficulties
U: 50% = recording only half understood

I: 25% = just able to follow the recordings as words
U: 25% = little understanding

I: 0% = barely able to follow
U: 0% = no useful understanding

Estimated time:

Estimate of Performance

%	R.1		R.2		R.3		R.4		R.5		R.6		R.7		R.8		R.9		R.10	
	I	U	I	U	I	U	I	U	I	U	I	U	I	U	I	U	I	U	I	U
100																				
75																				
50																				
25																				

APPENDIX III.1.

DATA ON STRESSES PERCEIVED BY SUBJECT AND BY TEXT.

SUBJECT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
TEXT																																																			
FRED 19	55	26	47	56	43	38	47	36	36	38	30	21	36	42	31	60	37	37	42	25	50	36	41	41	41	33	39	48	47	34	53	33	40	35	45	44	40	25	30	37	34	8	44	32	41	36	44	44	46	47	44
FRED 20	54	49	48	50	59	26	26	31	22	37	19	22	30	24	33	59	59	41	45	31	61	29	47	38	34	44	40	48	47	35	53	32	40	37	61	27	50	12	34	46	41	35	56	31	48	-	74	50	52	53	-
REED 7	55	29	63	65	65	36	53	33	48	34	33	21	32	39	37	49	50	29	49	52	64	59	38	57	54	38	37	43	40	44	61	38	46	35	28	55	35	25	36	46	54	33	62	45	50	41	58	58	56	54	-
REED 8	66	52	55	68	59	36	40	33	30	47	25	34	37	32	47	62	72	57	72	43	71	48	56	52	42	56	40	58	57	39	61	52	58	46	59	32	62	24	39	50	50	48	78	43	62	-	71	60	62	56	-
CARO 5	61	40	64	67	72	32	48	47	45	46	23	27	32	26	42	56	50	40	91	40	77	103	37	90	54	41	26	34	54	50	101	44	73	27	53	65	53	25	55	46	58	52	86	59	54	86	75	73	82	73	-
CARO 6	66	56	69	75	70	43	38	30	23	48	26	41	33	33	45	73	104	77	99	80	93	64	54	91	46	44	40	69	65	45	77	45	62	41	82	44	122	25	51	31	52	53	101	38	66	-	104	76	92	64	-
HAIR 9	34	40	65	71	59	21	44	33	52	49	13	27	23	30	35	42	64	51	68	20	73	62	38	82	65	35	29	42	36	50	91	53	76	26	35	68	62	21	36	39	40	38	103	49	50	91	45	58	68	62	-
HAIR 10	25	54	55	69	68	49	30	40	27	48	19	39	49	32	51	85	105	71	62	53	88	55	56	83	59	47	62	76	65	50	72	55	62	29	84	39	135	17	48	34	61	13	97	47	66	-	86	64	72	59	-
CAMB 11	77	71	79	91	74	20	60	43	67	65	22	20	54	45	41	52	97	73	82	28	89	77	60	93	83	74	33	53	66	65	96	58	86	33	60	91	78	36	33	69	61	81	130	66	73	100	73	77	86	82	-
CAMB 12	83	68	85	89	97	52	31	41	29	57	44	42	48	34	79	80	118	59	57	58	88	76	71	98	63	53	52	68	70	49	89	63	72	23	107	35	157	18	50	44	71	44	125	58	84	-	118	78	95	76	-
BEEB 3	54	52	77	90	67	35	55	39	43	63	9	22	25	35	51	71	95	77	66	26	94	55	34	72	59	78	49	61	68	71	78	70	58	33	65	66	68	21	40	78	53	41	123	-	60	96	72	70	93	83	-
BEEB 4	85	75	68	89	70	67	56	60	44	70	40	49	72	57	63	76	87	75	45	70	71	73	76	81	66	67	73	84	68	69	85	59	67	39	95	55	105	39	58	71	76	39	118	-	74	-	85	72	78	74	-
MORAL 13	3	1	-	-	-	-	-	-	13	10	-	-	7	6	-	22	31	31	25	-	27	-	14	-	28	12	19	18	17	5	-	36	14	11	10	17	-	-		-	-	-	-	39	21	29	43	29	27	-	38	36
MORAL 14	7	15	31	22	12	13	17	-	6	6	7	18	9	6	9	12	34	44	24	16	-	27	21	30	30	14	25	24	11	9	3	17	9	-	9	8	26	6	27	-	10	-	42	19	43	-	40	27	42	35	-
BLOOM 15	29	3	-	-	-	-	-	-	19	-	-	-	9	19	-	8	54	-	46	-	-	-	18	-	31	23	24	46	37	31	-	48	16	11	19	23	-	-		-	-	-	-	66	45	45	72	40	53	-	48	47
BLOOM 16	58	46	42	48	69	28	34	-	34	33	26	27	33	32	-	60	67	68	30	47	-	45	59	54	47	43	49	41	30	33	29	37	33	-	63	36	89	9	29	36	42	28	73	39	55	-	60	47	59	47	-
OPTIC 17	71	-	-	-	-	-	-	-	30				42	39		43			92				59		85	65	46	72	67	43		82		38	62	89		25						73	77	130	51	90		84	86
OPTIC 18	78	53	72	84	99	-	63	-	34	39	36	51	50	33	-	79	120	83	64	26	-	77	81	89	76	71	86	75	38	39	44	57	34	-	60	50	99	25	68	72	79	20	113	63	94	-	110	82	126	91	-
BEEB 1	65	58	-	86	79	37	44	55	59	62	15	62	53	55	-	73	97	82	86	20	82	22	53	-	76	58	65	61	73	71	67	72	46	41	50	57	53	37	38	90	45	48	110	73	77	97	77	82	73	79	71
BEEB 2	69	70	74	83	76	57	55	59	57	56	41	40	71	62	77	80	91	126	64	58	75	72	68	77	66	60	76	66	68	55	73	66	46	41	78	58	109	34	53	44	47	35	90	73	76	-	78	74	76	79	-

Appendix III.2. Comparison of NNS and NS Judgements of Stress Location (High and Low Agreement)

In each column shown below, the first figure is the total number of NNS subjects who agreed that a word was stressed, the second figure is the total number of NS subjects who agreed that a word was stressed.

	Test 1.			Test 2.			
Case (word)	NNS total : NS total			NNS total : NS total			
Fred 19/20	NNS:NS	NNS:NS	NNS:NS	NNS:NS	NNS:NS	NNS:NS	
free/tickets	24:8	30:1		8:3	13:2		(N=7)
meet	7:7			8:5			
while	23:2			23:5			
husband	17:1			-			
weren't/there/either	6:0	17:9	31:3	4:2	18:6	35:7	
well/Fred/explained	16:6	2:0	27:2	1:6	1:1	23:5	
Reed 7/8							
any/time	11:8	32:4		21:6	33:5		
* entered/the library	11:8	32:8		21:7	29:6		
next	15:7			13:6			
Caro 5/6							
so/sorry	11:8	31:2		23:6	31:7		(N=7)
is	1:8			3:6			
coat hanger	12:8	7:2		12:6	27:3		
Bill	7:7			12:5			
hooks	10:7			23:7			
where	8:7			25:7			
can	11:7			15:6			
do	8:7			11:6			
stop	9:7			13:6			
off	7:7			12:4			
right	11:8			12:7			
avenue	10:7			15:6			

* Words underlined in phrases are those compared.

Appendix III.2 (cont'd)

Hair 9/10	Test 1.	(NNS:NS)	Test 2.	(NNS:NS)	
I like about him	11:8	26:2	15:7	31:6	(N=7)
I've come across	18:8	27:1	18:6	31:2	
elder	8:7		25:7		
one style	6:8	28:3	17:7	23:0	
that style	3:6	30:1	13:7	30:1	
hair	12:7		11:7		
I live in Teddington	24:7	23:2	31:7	19:2	
Ealing	2:4		1:7		
more	22:5		28:3		
your hair done	13:8		8:7		
appeal to her	13:7		28:7		
Camb 11/12					
rapid journey	9:7	23:1	9:4	21:6	
police car	20:8	14:1	10:6	25:2	
any moment	15:7	23:2	1:0	28:7	
opened	14:7		-		
this district	11:8	26:1	6:4	10:2	
arrival obviously	18:1	13:7	19:7	24:2	
shut again	-		19:7	24:2	
under	17:7		13:6		
lot	13:8		13:6		
on in it	8:8	17:2	8:7	14:1	
one corner	7:7	28:2	0:4	25:2	
Beeb 3/4					
letter	17:8		22:7		
Paddington	14:8		28:7		
firm	7:8		24:7		
American	18:8		32:7		
book and	35:6	0:7	37:7	14:6	
other devices	6:6	24:3	24:7	25:1	
London address	19:4	17:6	5:1	40:7	
wouldn't	6:6		37:7		
called	15:1		13:2		
Prime Minister	24:0	21:8	15:0	27:7	
United States	17:2	35:8	18:0	34:6	
American eyes	19:7	21:1	34:7	21:0	
western world	12:6	31:6	6:2	22:4	

Appendix III.2 (cont'd)

Beeb 3/4 (cont'd)	Test 1. (NNS:NS)			Test 2. (NNS:NS)		
substitute action	19:2	32:8		6:1	40:7	
anger ... despair	15:8	15:8		37:7	37:7	
Beeb 1/2						
Britain's	14:9			10:7		(N=39)
-general	16:9			22:7		
hope	13:0			10;1		
this much	6:8			5:6		
urging	12:7			19:6		
Embassy	14:2			16:0		
deal	15:9			23:6		
crisis	15:3			17:0		
as he sees fit	5:9	11:1	12:3	9:7	10:2	17:4
nothing	17:9			27:7		
can	7:9			16:6		
authorities	15:9			19:7		
Java Sea	11:2	18:9		10:2	23:5	
Entalina	9:7			20:7		
and	16:9			21:7		
no end	12:8	14:0		16:6	21:1	
Moral 13/14						
moral	8:7			12:7		(N=23)
gambling	4:7			9:6		
this guy	2:7	13:3		5:5	22:4	
Oxford	7:7			17:5		
idea	5:7			8:6		
theory	3:7			9:6		
ludicrous	3:6			2:6		
simple	4:5			7:6		
double up	9:6	1:7		20:6	15:6	
red	8:7			8:5		
on black indefinitely	1:0	7:6	5:6	0:0	10:6	6:6
Bloon 15/16						
really	7:8			30:7		(N=20)
this stage	2:4	4:0		18:5	13:1	
private	9:7			15:7		

Appendix III.2 (cont'd)

Bloon 15/16 (cont'd)	Test 1.	(NNS:NS)	Test 2.	(NNS:NS)	
hot-air	5:8		15:7		
other	1:5		13:6		
flown	2:6		31:7		
in a balloon	0:7	7:3	10:7	32:3	
on a balloon	0:8	6:2	12:7	26:2	
in a balloon	1:7	5:2	15:7	23:2	
fly a balloon	6:6	2:2	30:7	22:2	
instant	8:7		8:5		
this particular	1:2	4:1	6:7	21:0	
using	8:7		4:1		
humpty dumpty	8:8	10:8	31:7	27:5	
hot-air balloon	3:7	6:4	24:6	23:4	
parachute	5:8		35:6		
idea	4:6		10:7		
very exciting	9:6	13:4	24:7	23:3	
Optic 17/18					
having	12:6		10:6		(N=18)
basement	15:7		9:6		
department	3:2		16:4		
print	1:4		8:7		
don't worry	7:6		8:5		
next	13:7		13:7		
third	6:6		11:7		
other	5:6		3:6		
change	7:7		16:7		
memorize	8:7		17:7		
do that	2:7		4:6		
T perhaps	3:7	11:0	14:7	14:1	
your eyes	2:7	5:0	3:0	8:6	
What's this for	4:6		11:6		
this	0:3		8:6		
that's	0:5		4:0		
healthy	2:7		7:7		
see	8:3		21:0		

APPENDIX III.3. Frequency and Percentage Agreement of Stress Location for NS and NNS

REED 7 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	101	56.7	56.7
1.	10	5.6	62.4
2.	6	3.4	65.7
3.	3	1.7	67.4
4.	7	3.9	71.3
5.	4	2.2	73.6
6.	7	3.9	77.5
7.	17	9.6	87.1
8.	23	12.9	100.0
TOTAL	178	100.0	

REED 8 NS

Code	Absolute Freq.	Relative Freq. (Pct.	Cum. Freq. (Pct.)
0.	94	52.8	52.8
1.	8	4.5	57.3
2.	8	4.5	61.8
3.	7	3.9	65.7
4.	5	2.8	68.5
5.	6	3.4	71.9
6.	13	7.3	79.2
7.	37	20.8	100.0
TOTAL	178	100.0	

APPENDIX III.3 (cont'd) REED 7 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	60	33.7	33.7
1.	20	11.2	44.9
2.	12	6.7	51.7
3.	8	4.5	56.2
4.	5	2.8	59.0
5.	3	1.7	60.7
7.	3.	1.7	62.4
8.	1	0.6	62.9
9.	1	0.6	63.5
10.	2	1.1	64.6
11.	3	1.7	66.3
12.	4	2.2	68.5
13.	1	0.6	69.1
14.	3	1.7	70.8
15.	3	1.7	72.5
16.	1	0.6	73.0
17.	1	0.6	73.6
18.	1	0.6	74.2
20.	1	0.6	74.7
21.	1	0.6	75.3
22.	6	3.4	78.7
23.	1	0.6	79.2
26.	2	1.1	80.3
27.	1	0.6	80.9
28.	1	0.6	81.5
29.	1	0.6	82.0
30.	3	1.7	83.7
31.	3	1.7	85.4
32.	4	2.2	87.6
33.	1	0.6	88.2
34.	4	2.2	90.4
35.	4	2.2	92.7
36.	6	3.4	96.1
37.	1	0.6	96.6
39.	4	2.2	98.9
40.	2	1.1	100.0
TOTAL	178	100.0	

REED 8 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	49	27.5	27.5
1.	22	12.4	39.9
2.	13	7.3	47.2
3.	8	4.5	51.7
4.	6	3.4	55.1
5.	4	2.2	57.3
6.	4	2.2	59.6
7.	2	1.1	60.7
8.	2	1.1	61.8
9.	1	0.6	62.4
10.	1	0.6	62.9
11.	3	1.7	64.6
12.	2	1.1	65.7
13.	1	0.6	66.3
14.	1	0.6	66.9
15.	1	0.6	67.4
16.	1	0.6	68.0
18.	2	1.1	69.1
19.	2	1.1	70.2
20.	1	0.6	70.8
21.	2	1.1	71.9
23.	1	0.6	72.5
24.	2	1.1	73.6
25.	3	1.7	75.3
26.	1	0.6	75.8
27.	2	1.1	77.0
28.	5	2.8	79.8
29.	4	2.2	82.0
30.	3	1.7	83.7
32.	2	1.1	84.8
33.	3	1.7	86.5
34.	3	1.7	88.2
35.	3	1.7	89.9
36.	3	1.7	91.6
37.	6	3.4	94.9
38.	1	0.6	95.5
39.	5	2.8	98.3
40.	2	1.1	99.4
42.	1	0.6	100.0
TOTAL	178	100.0	

APPENDIX III.3 (cont'd) FRED 19 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	88	60.3	60.3
1.	6	4.1	64.4
2.	4	2.7	67.1
3.	1	0.7	67.8
4.	4	2.7	70.5
5.	1	0.7	71.2
6.	7	4.8	76.0
7.	5	3.4	79.5
8.	7	4.8	84.2
9.	23	15.8	100.0
TOTAL	146	100.0	

FRED 20 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	69	47.3	47.3
1.	10	6.8	54.1
2.	6	4.1	58.2
3.	6	4.1	62.3
4.	8	5.5	67.8
5.	13	8.9	76.7
6.	11	7.5	84.2
7.	23	15.8	100.0
TOTAL	146	100.0	

APPENDIX III.3 (cont'd) FRED 19 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	32	21.9	21.9
1.	18	12.3	34.2
2.	14	9.6	43.8
3.	5	3.4	47.3
4.	5	3.4	50.7
5.	7	4.8	55.5
6.	3	2.1	57.5
7.	3	2.1	59.6
8.	2	1.4	61.0
9.	1	0.7	61.6
10.	2	1.4	63.0
11.	2	1.4	64.4
14.	1	0.7	65.1
16.	3	2.1	67.1
17.	5	3.4	70.5
18.	1	0.7	71.2
19.	1	0.7	71.9
21.	3	2.1	74.0
23.	5	3.4	77.4
24.	2	1.4	78.8
25.	2	1.4	80.1
27.	4	2.7	82.9
28.	2	1.4	84.2
29.	3	2.1	86.3
30.	3	2.1	88.4
31.	3	2.1	90.4
32.	2	1.4	91.8
33.	1	0.7	92.5
34.	3	2.1	94.5
35.	2	1.4	95.9
37.	2	1.4	97.3
38.	2	1.4	98.6
40.	1	0.7	99.3
42.	1	0.7	100.0
TOTAL	146	100.0	

FRED 20 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	21	14.4	14.4
1.	20	13.7	28.1
2.	11	7.5	35.6
3.	9	6.2	41.8
4.	8	5.5	47.3
5.	3	2.1	49.3
6.	4	2.7	52.1
7.	1	0.7	52.7
8.	3	2.1	54.8
9.	2	1.4	56.2
10.	4	2.7	58.9
11.	4	2.7	61.6
12.	5	3.4	65.1
13.	4	2.7	67.8
14.	2	1.4	69.2
15.	1	0.7	69.9
16.	2	1.4	71.2
18.	1	0.7	71.9
19.	5	3.4	75.3
20.	2	1.4	76.7
21.	1	0.7	77.4
23.	3	2.1	79.5
25.	3	2.1	81.5
26.	1	0.7	82.2
27.	4	2.7	85.6
28.	2	1.4	86.3
31.	4	2.8	89.7
32.	1	0.7	89.7
33.	2	1.4	91.1
34.	2	1.4	92.5
35.	5	3.4	95.9
36.	2	1.4	97.3
38.	1	0.7	97.9
39.	2	1.4	99.3
40.	1	0.7	100.0
TOTAL	146	100.0	

APPENDIX III.3 (cont'd) CARO 5 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	82	37.3	37.3
1.	31	14.1	51.4
2.	13	5.9	57.3
3.	9	4.1	61.4
4.	19	8.6	70.0
5.	12	5.5	75.5
6.	16	7.3	82.7
7.	21	9.5	92.3
8.	17	7.7	100.0
TOTAL	220	100.0	

CARO 6 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	97	44.1	44.1
1.	18	8.2	52.3
2.	7	3.2	55.5
3.	15	6.8	62.3
4.	19	8.6	70.9
5.	18	8.2	79.1
6.	24	10.9	90.0
7.	22	10.0	100.0
	220	100.0	

APPENDIX III.3 (cont'd) CARO 5 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	32	14.5	14.5
1.	29	13.2	27.7
2.	17	7.7	35.5
3.	14	6.4	41.8
4.	7	3.2	45.0
5.	14	6.4	51.4
6.	10	4.5	55.9
7.	7	3.2	59.1
8.	7	3.2	62.3
9.	4	1.8	64.1
10.	3	1.4	65.5
11.	6	2.7	68.2
12.	4	1.8	70.0
13.	2	0.9	70.9
14.	1	0.5	71.4
15.	3	1.4	72.7
16.	1	0.5	73.2
17.	3	1.4	74.5
18.	7	3.2	77.7
19.	2	0.9	78.6
20.	5	2.3	80.9
21.	3	1.4	82.3
22.	2	0.9	83.2
23.	2	0.9	84.1
24.	3	1.4	85.5
25.	3	1.4	86.8
26.	4	1.8	88.6
27.	1	0.5	89.1
28.	3	1.4	90.5
29.	4	1.8	92.3
30.	3	1.4	93.6
31.	2	0.9	94.5
32.	3	1.4	95.9
34.	3	1.4	97.3
35.	3	1.4	98.6
38.	1	0.5	99.1
39.	1	0.5	99.5
40.	1	0.5	100.0
TOTAL	220	100.0	

CARO 5 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	17	7.7	7.7
1.	31	14.1	21.8
2.	22	10.0	31.8
3.	13	5.9	37.7
4.	9	4.1	41.8
5.	8	3.6	45.5
6.	8	3.6	49.1
7.	4	1.8	50.9
8.	6	2.7	53.6
9.	2	0.9	54.5
10.	3	1.4	55.9
11.	9	4.1	60.0
12.	11	5.0	65.0
13.	5	2.3	67.3
14.	2	0.9	68.2
15.	8	3.6	71.8
16.	3	1.4	73.2
17.	2	0.9	74.1
18.	2	0.9	75.0
19.	3	1.4	76.4
20.	2	0.9	77.3
21.	6	2.7	80.0
22.	2	0.9	80.9
23.	4	1.8	82.7
24.	2	0.9	83.6
25.	4	1.8	85.5
26.	4	1.8	87.3
27.	4	1.8	89.1
28.	1	0.5	89.5
29.	7	3.2	92.7
30.	1	0.5	83.2
31.	2	0.9	94.1
32.	2	0.9	95.0
33.	1	0.5	95.5
34.	2	0.9	96.4
35.	2	0.9	97.3
36.	1	0.5	97.7
37.	3	1.4	99.1
38.	1	0.5	99.5
39.	1	0.5	100.0
TOTAL	220	100.0	

APPENDIX III.3 (cont'd) HAIR 9 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	91	39.4	39.4
1.	49	21.2	60.6
2.	18	7.8	68.4
3.	8	3.5	71.9
4.	9	3.9	75.8
5.	11	4.8	80.5
6.	7	3.0	83.5
7.	20	8.7	92.2
8.	18	7.8	100.0
TOTAL	231	100.0	

HAIR 10 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	116	50.2	50.2
1.	28	12.1	62.3
2.	11	4.8	67.1
3.	7	3.0	70.1
4.	10	4.3	74.5
5.	7	3.0	77.5
6.	19	8.2	85.7
7.	33	14.3	100.0
TOTAL	231	100.0	

APPENDIX III.3 (cont'd) HAIR 9 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	47	20.3	20.3
1.	29	12.6	32.9
2.	19	8.2	41.1
3.	6	2.6	43.7
4.	15	6.5	50.2
5.	9	3.9	54.1
6.	8	3.5	57.6
7.	5	2.2	59.7
8.	7	3.0	62.8
9.	4	1.7	64.5
10.	9	3.9	68.4
11.	4	1.7	70.1
12.	8	3.5	73.6
13.	7	3.0	76.6
14.	5	2.2	78.8
15.	3	1.3	80.1
16.	1	0.4	80.5
17.	6	2.6	83.1
18.	2	0.9	84.0
19.	4	1.7	85.7
20.	3	1.3	87.0
21.	2	0.9	87.9
22.	1	0.4	88.3
23.	3	1.3	89.6
24.	3	1.3	90.9
25.	1	0.4	91.3
26.	3	1.3	92.6
27.	2	0.9	93.5
28.	1	0.4	93.9
29.	1	0.4	94.4
30.	2	0.9	95.2
31.	5	2.2	97.4
33.	2	0.9	98.3
35.	1	0.4	98.7
36.	1	0.9	99.1
38.	2	0.9	100.0
TOTAL	231	100.0	

HAIR 10 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	26	11.3	11.3
1.	25	10.8	22.1
2.	22	9.5	31.6
3.	22	9.5	41.1
4.	13	5.6	46.8
5.	7	3.0	49.8
6.	5	2.2	51.9
7.	7	3.0	55.0
8.	10	4.3	59.3
9.	5	2.2	61.5
10.	4	1.7	63.2
11.	6	2.6	65.8
12.	2	0.9	66.7
13.	7	3.0	69.7
14.	2	0.9	70.6
15.	5	2.2	72.7
16.	3	1.3	74.0
17.	7	3.0	77.1
18.	3	1.3	78.4
19.	5	2.2	80.5
20.	4	1.7	82.3
21.	2	0.9	83.1
22.	2	0.9	84.0
23.	4	1.7	85.7
24.	3	1.3	87.0
25.	1	0.4	87.4
26.	1	0.4	87.9
27.	1	0.4	88.3
28.	5	2.2	90.5
29.	3	1.3	91.8
30.	3	1.3	93.1
31.	6	2.6	95.7
32.	3	1.3	97.0
33.	1	0.4	97.4
34.	2	0.9	98.3
35.	1	0.4	98.7
36.	1	0.4	99.1
38.	1	0.4	99.6
39.	1	0.4	100.0
TOTAL	231	100.0	

APPENDIX III.3 (cont'd) CAMB 11 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	126	46.7	46.7
1.	34	12.6	59.3
2.	20	7.4	66.7
3.	6	2.2	68.9
4.	6	2.2	71.1
5.	2	0.7	71.9
6.	15	5.6	77.4
7.	17	6.3	83.7
8.	44	16.3	100.0
TOTAL	270	100.0	

CAMB 12 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	131	48.5	48.5
1.	13	4.8	53.3
2.	21	7.8	61.1
3.	13	4.8	65.9
4.	16	5.9	71.9
5.	17	6.3	78.1
6.	22	8.1	86.3
7.	37	13.7	100.0
TOTAL	270	100.0	

APPENDIX III.3 (cont'd) CAMB 11 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	93	34.4	34.4
1.	32	11.9	46.3
2.	8	3.0	49.3
3.	4	1.5	50.7
4.	6	2.2	53.0
5.	5	1.9	54.8
6.	5	1.9	56.7
7.	3	1.1	57.8
8.	4	1.5	59.3
9.	5	1.9	61.1
10.	4	1.5	62.6
11.	7	2.6	65.2
12.	3	1.1	66.3
13.	5	1.9	68.1
14.	5	1.9	70.0
15.	5	1.9	71.9
16.	4	1.5	73.3
17.	4	1.5	74.8
18.	4	1.5	76.3
19.	1	0.4	76.7
20.	2	0.7	77.4
21.	3	1.1	78.5
22.	3	1.1	79.6
23.	4	1.5	81.1
24.	1	0.4	81.5
25.	3	1.1	82.6
26.	7	2.6	85.2
27.	8	3.0	88.1
28.	4	1.5	89.6
29.	1	0.4	90.0
30.	2	0.7	90.7
31.	4	1.5	92.2
32.	1	0.4	92.6
33.	7	2.6	95.2
34.	2	0.7	95.9
35.	5	1.9	97.8
36.	3	1.1	98.9
38.	1	0.4	99.3
39.	2	0.7	100%
TOTAL	270	100.0	

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	47	17.4	17.4
1.	46	17.0	34.4
2.	21	7.8	42.2
3.	14	5.2	47.4
4.	5	1.9	49.3
5.	6	2.2	51.5
6.	7	2.6	54.1
7.	4	1.5	55.6
8.	6	2.2	57.8
9.	5	1.9	59.6
10.	8	3.0	62.6
11.	6	2.2	64.8
12.	3	1.1	65.9
13.	7	2.6	68.5
14.	3	1.1	69.6
15.	5	1.9	71.5
16.	3	1.1	72.6
17.	3	1.1	73.7
18.	2	0.7	74.4
19.	6	2.2	76.7
20.	2	0.7	77.4
21.	5	1.9	79.3
22.	4	1.5	80.7
23.	4	1.5	82.2
24.	5	1.9	84.1
25.	7	2.6	86.7
26.	2	0.7	87.4
27.	3	1.1	88.5
28.	6	2.2	90.7
29.	2	0.7	91.5
30.	5	1.9	93.3
31.	6	2.2	95.6
32.	2	0.7	96.3
33.	2	0.7	97.0
34.	3	1.1	98.1
35.	2	0.7	98.9
37.	2	0.7	99.6
39.	1	0.4	100.0
TOTAL	270	100.0	

APPENDIX III.3 (cont'd) BEEB 3 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	120	45.1	45.1
1.	28	10.5	55.6
2.	20	7.5	63.2
3.	15	5.6	68.8
4.	7	2.6	71.4
5.	8	3.0	74.4
6.	26	9.8	84.2
7.	15	5.6	89.8
8.	27	10.2	100.0
TOTAL	266	100.0	

BEEB 4 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	145	54.5	54.5
1.	31	11.7	66.2
2.	11	4.1	70.3
3.	3	1.1	71.4
4.	1	0.4	71.8
5.	4	1.5	73.3
6.	5	1.9	75.2
7.	66	24.8	100.0
TOTAL	266	100.0	

APPENDIX III.3 (cont'd) BEEB 3 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	73	27.4	27.4
1.	26	9.8	37.2
2.	16	6.0	43.2
3.	13	4.9	48.1
4.	9	3.4	51.5
5.	11	4.1	55.6
6.	11	4.1	59.8
7.	8	3.0	62.8
8.	3	1.1	63.9
9.	3	1.1	65.0
10.	6	2.3	67.3
11.	3	1.1	68.4
12.	5	1.9	70.3
13.	1	0.4	70.7
14.	5	1.9	72.6
15.	4	1.5	74.1
16.	2	0.8	74.8
17.	5	1.9	76.7
18.	6	2.3	78.9
19.	5	1.9	80.8
20.	5	1.9	82.7
21.	5	1.9	84.6
22.	3	1.1	85.7
23.	3	1.1	86.8
24.	4	1.5	88.3
25.	3	1.1	89.5
26.	5	1.9	91.4
27.	1	0.4	91.7
28.	3	1.1	92.9
30.	2	0.8	93.6
31.	3	1.1	94.7
32.	1	0.4	95.1
33.	3	1.1	96.2
34.	4	1.5	97.7
35.	3	1.1	98.9
36.	1	0.4	99.2
37.	1	0.4	99.6
41.	1	0.4	100.0
TOTAL	266	100.0	

BEEB 4 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	85	32.0	32.0
1.	28	10.5	42.5
2.	23	8.6	51.1
3.	10	3.8	54.9
4.	9	3.4	58.3
5.	11	4.1	62.4
6.	5	1.9	64.3
7.	4	1.5	65.8
8.	3	1.1	66.9
9.	2	0.8	67.7
10.	3	1.1	68.8
11.	1	0.4	69.2
13.	1	0.4	69.5
14.	1	0.4	69.9
15.	2	0.8	70.7
16.	2	0.8	71.4
17.	1	0.4	71.8
18.	1	0.4	72.2
20.	1	0.4	72.6
21.	3	1.1	73.7
22.	2	0.8	74.4
23.	1	0.4	74.8
24.	3	1.1	75.9
25.	2	0.8	76.7
26.	1	0.4	77.1
27.	2	0.8	77.8
28.	2	0.8	78.6
29.	4	1.5	80.1
30.	3	1.1	81.2
31.	2	0.8	82.0
32.	5	1.9	83.8
33.	7	2.6	86.5
34.	10	3.8	90.2
35.	5	1.9	92.1
36.	4	1.5	93.6
37.	9	3.4	97.0
38.	2	0.8	97.7
39.	2	0.8	98.5
40.	3	1.1	99.6
41.	1	0.4	100.0
TOTAL	266	100.0	

APPENDIX III.3 (cont'd) BEEB 1 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	113	46.5	46.5
1.	26	10.7	57.2
2.	17	7.0	64.2
3.	8	3.3	67.5
4.	3	1.2	68.7
5.	2	0.8	69.5
6.	2	0.8	70.4
7.	7	2.9	73.3
8.	13	5.3	78.6
9.	52	21.4	100.0
	243	100.0	

BEEB 2 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	139	57.2	57.2
1.	19	7.8	65.0
2.	4	1.6	66.7
3.	4	1.6	68.3
4.	4	1.6	70.0
5.	5	2.1	72.0
6.	10	4.1	76.1
7.	58	23.9	100.0
	243	100.0	

APPENDIX III.3 (cont'd) BEEB 1 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	66	27.2	27.2
1.	24	9.9	37.0
2.	15	6.2	43.2
3.	16	6.6	49.8
4.	4	1.6	51.4
5.	11	4.5	56.0
6.	5	2.1	58.0
7.	5	2.1	60.1
8.	5	2.1	62.1
9.	6	2.5	64.6
11.	3	1.2	65.8
12.	4	1.6	67.5
13.	4	1.6	69.1
14.	3	1.2	70.4
15.	7	2.9	73.3
16.	4	1.6	74.9
17.	2	0.8	75.7
18.	4	1.6	77.4
19.	1	0.4	77.8
20.	2	0.8	78.6
21.	4	1.6	80.2
22.	4	1.6	81.9
24.	2	0.8	82.7
25.	5	2.1	84.8
26.	5	2.1	86.8
27.	4	1.6	88.5
28.	3	1.2	89.7
29.	3	1.2	90.9
30.	7	2.9	93.8
31.	5	2.1	95.9
32.	3	1.2	97.1
33.	2	0.8	97.9
34.	4	1.6	99.6
35.	1	0.4	100.0
TOTAL	243	100.0	

BEEB 2 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	68	28.0	28.0
1.	16	6.6	34.6
2.	12	4.9	39.5
3.	16	6.6	46.1
4.	8	3.3	49.4
5.	8	3.3	52.7
6.	4	1.6	54.3
7.	11	4.5	58.8
8.	3	1.2	60.1
9.	1	0.4	60.5
10.	8	3.3	63.8
11.	2	0.8	64.6
12.	3	1.2	65.8
13.	1	0.4	66.3
14.	3	1.2	67.5
16.	5	2.1	69.5
17.	4	1.6	71.2
19.	3	1.2	72.4
20.	3	1.2	73.7
21.	4	1.6	75.3
22.	4	1.6	77.0
23.	5	2.1	79.0
25.	1	0.4	79.4
27.	4	1.6	81.1
28.	3	1.2	82.3
30.	5	2.1	84.4
31.	5	2.1	86.4
32.	6	2.5	88.9
33.	2	0.8	89.7
34.	3	1.2	90.9
35.	6	2.5	93.4
36.	8	3.3	96.7
37.	1	0.4	97.1
38.	1	0.4	97.5
39.	2	0.8	98.4
40.	3	1.2	99.6
41.	1	0.4	100.0
TOTAL	243	100.0	

APPENDIX III.3 (cont'd)

MORAL 13 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	74	55.6	55.6
1.	11	8.3	63.9
2.	7	5.3	69.2
3.	6	4.5	73.7
4.	5	3.8	77.4
5.	7	5.3	82.7
6.	5	3.8	86.5
7.	10	7.5	94.0
8.	8	6.0	100.0
TOTAL	133	100.0	

MORAL 13 NNS

0.	64	48.1	48.1
1.	15	11.3	59.4
2.	9	6.8	66.2
3.	5	3.8	69.9
4.	11	8.3	78.2
5.	3	2.3	80.5
6.	6	4.5	85.0
7.	5	3.8	88.7
8.	2	1.5	90.2
9.	1	0.8	91.0
10.	1	0.8	91.7
11.	2	1.5	93.2
12.	1	0.8	94.0
13.	1	0.8	94.7
14.	1	0.8	95.5
15.	1	0.8	96.2
16.	2	1.5	97.7
18.	2	1.5	99.2
20.	1	0.8	100.0
TOTAL	133	100.0	

MORAL 14 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	76	57.1	57.1
1.	7	5.3	62.4
2.	6	4.5	66.9
3.	5	3.8	70.7
4.	9	6.8	77.4
5.	10	7.5	85.0
6.	12	9.0	94.0
7.	8	6.0	100.0
TOTAL	133	100.0	

MORAL 14 NNS

0.	52	39.1	39.1
1.	20	15.0	54.1
2.	8	6.0	60.2
3.	11	8.3	68.4
4.	2	1.5	69.9
5.	4	3.0	72.9
6.	3	2.3	75.2
7.	1	0.8	75.9
8.	5	3.8	79.7
9.	4	3.0	82.7
10.	2	1.5	84.2
11.	3	2.3	86.5
12.	2	1.5	88.0
14.	1	0.8	88.7
15.	2	1.5	90.2
16.	1	0.8	91.0
17.	2	1.5	92.5
18.	1	0.8	93.2
19.	1	0.8	94.0
20.	2	1.5	95.5
22.	1	0.8	96.2
26.	1	0.8	97.0
28.	1	0.8	97.7
29.	1	0.8	98.5
31.	1	0.8	99.2
32.	1	0.8	100.0
TOTAL	133	100.0	

APPENDIX III.3 (cont'd) BLOON 15 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	74	42.8	42.8
1.	24	13.9	56.6
2.	9	5.2	61.8
3.	7	4.0	65.9
4.	13	7.5	73.4
5.	13	7.5	80.9
6.	9	5.2	86.1
7.	10	5.8	91.9
8.	14	8.1	100.0
TOTAL	173	100.0	

BLOON 16 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	91	52.6	52.6
1.	11	6.4	59.0
2.	11	6.4	65.3
3.	5	2.9	68.2
4.	8	4.6	72.8
5.	10	5.8	78.6
6.	9	5.2	83.8
7.	28	16.2	100.0
TOTAL	173	100.0	

APPENDIX III.3 (cont'd) BLOON 15 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	72	41.6	41.6
1.	24	13.9	55.5
2.	13	7.5	63.0
3.	7	4.0	67.1
4.	9	5.2	72.3
5.	7	4.0	76.3
6.	10	5.8	82.1
7.	4	2.3	84.4
8.	8	4.6	89.0
9.	5	2.9	91.9
10.	6	3.5	95.4
12.	1	0.6	96.0
13.	2	1.2	97.1
15.	4	2.3	99.4
17.	1	0.6	100.0
TOTAL	173	100.0	

BLOON 16 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	40	23.1	23.1
1.	19	11.0	34.1
2.	14	8.1	42.2
3.	9	5.2	47.4
4.	9	5.2	52.6
5.	3	1.7	54.3
6.	8	4.6	59.0
8.	5	2.9	61.8
9.	2	1.2	63.0
10.	4	2.3	65.3
11.	3	1.7	67.1
12.	4	2.3	69.4
13.	3	1.7	71.1
14.	1	0.6	71.7
15.	5	2.9	74.6
17.	2	1.2	75.7
18.	3	1.7	77.5
19.	2	1.2	78.6
20.	1	0.6	79.2
21.	1	0.6	79.8
22.	2	1.2	80.9
23.	4	2.3	83.2
24.	5	2.9	86.1
25.	2	1.2	87.3
26.	2	1.2	88.4
27.	2	1.2	89.6
28.	3	1.7	91.3
29.	1	0.6	91.9
30.	6	3.5	95.4
31.	3	1.7	97.1
32.	2	1.2	98.3
35.	3	1.7	100.0
TOTAL	173	100.0	

APPENDIX III.3 (cont'd) OPTIC 17 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	174	52.9	52.9
1.	43	13.1	66.0
2.	18	5.5	71.4
3.	10	3.0	74.5
4.	18	5.5	79.9
5.	14	4.3	84.2
6.	24	7.3	91.5
7.	28	8.5	100.0
TOTAL	329	100.0	

OPTIC 18 NS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	174	52.9	52.9
1.	28	8.5	61.4
2.	15	4.6	66.0
3.	17	5.2	71.1
4.	15	4.6	75.7
5.	15	4.6	80.2
6.	20	6.1	86.3
7.	45	13.7	100.0
TOTAL	329	100.0	

APPENDIX III.3 (cont'd) OPTIC 17 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	128	38.9	38.9
1.	51	15.5	54.4
2.	34	10.3	64.7
3.	20	6.1	70.8
4.	10	3.0	73.9
5.	14	4.3	78.1
6.	8	2.4	80.5
7.	10	3.0	83.6
8.	9	2.7	86.3
9.	6	1.8	88.1
10.	4	1.2	89.4
11.	8	2.4	91.8
12.	5	1.5	93.3
13.	4	1.2	94.5
14.	4	1.2	95.7
15.	6	1.8	97.6
16.	4	1.2	98.8
17.	2	0.6	99.4
18.	2	0.6	100.0
TOTAL	329	100.0	

OPTIC 18 NNS

Code	Absolute Freq.	Relative Freq. (Pct.)	Cum. Freq. (Pct.)
0.	66	20.1	20.1
1.	41	12.5	32.5
2.	34	10.3	42.9
3.	25	7.6	50.5
4.	19	5.8	56.2
5.	10	3.0	59.3
6.	7	2.1	61.4
7.	10	3.0	64.4
8.	12	3.6	68.1
9.	10	3.0	71.1
10.	8	2.4	73.6
11.	11	3.3	76.9
12.	5	1.5	78.4
13.	7	2.1	80.5
14.	7	2.1	82.7
15.	4	1.2	83.9
16.	4	1.2	85.1
17.	7	2.1	87.2
18.	7	2.1	89.4
19.	7	2.1	91.5
20.	1	0.3	91.8
21.	2	0.6	92.4
22.	4	1.2	93.6
24.	1	0.3	93.9
25.	4	1.2	95.1
26.	4	1.2	96.4
27.	2	0.6	97.0
28.	1	0.3	97.3
29.	4	1.2	98.5
31.	1	0.3	98.8
32.	1	0.3	99.1
34.	1	0.3	99.4
35.	1	0.3	99.7
36.	1	0.3	100.0
TOTAL	329	100.0	

Appendix III.4

Experiment 2 : Analysis of NS and NNS readings of stress-marked text.

NNS subjects

S.1. Class 5A (FCE level)

Text 1. (Fred 20) - "Authentic" recording.

her - no fall, pitch held level

much - no fall, pitch held level

time - fall, but dash(-) in text following to indicate boundary

tickets - no fall, pitch held level

explained - pitch fall, no dash following

good pronunciation throughout, good word stress.

Text 2. (Reed 8) - "Regular" recording.

barnes the man - no break whatsoever though non-defining relative demands this.

Text 3. (Camb 12) - "Authentic" recording.

S1. follows her own stress marking very well on the whole.

But : doctors arrival obviously - inaccurate perception, and production follows this inaccurate perception.

opened - S. corrects initial error to give correct fall.

Text 4. (Beeb 2) - "Regular" recording

Not always a clear differentiation between sentence/tonic stress and word stress, but stress marking followed closely.

S.4. Class 1A (beginner)

Text 1. (see over)

Appendix III.4 (cont'd)

S.4. Class 1A (beginner)

Text 1.

wife I - no break, pitch held level

delighted - word stress wrong

arranged - word stress wrong

because - word stress wrong

office - fall only to mid, though at end of text.

No clear syntactic breaks except where dashes indicate. Stresses followed very well and to the listener, this S. gives a performance above class level. Poor pronunciation, not surprisingly.

Text 2.

reports - word stress wrong

coins - fall at correct place

looked - wrong word stress

discovered - wrong word stress

robbed - wrong word stress

dramatically - wrong word stress

everything - wrong word stress

Few syntactic breaks where called for by text.

S.5. Class 1A (beginner)

Text 1.

Loss of intelligibility as stress pattern breaks down after first three lines.

Hesitation before unfamiliar words and syntax e.g. delighted.

embarrassed what's the matter - no syntactic break, level pitch

very much she met her husband - no break, level pitch

Text 2.

N.B. poor control over breath - frequent running out of breath at odd moments.

debt - pitch kept up, where syntax requires fall.

Appendix III.4 (cont'd)

S.7. Class 1A (beginner)

Text 1.

Able to follow own stress pattern. Poor control over breath and inability to come down appropriately means running out at odd moments.

much - fall at syntactic break

here try your pockets - no fall where required by syntax

sense of one second rhythm even if stress not marked : Well Fred explained

accurately read though not underlined

briefcase - inaccurate perception in stress marking and inaccurate production.

Text 2.

collection - accurate perception and production

falls at syntactic breaks only where indicated by dashes:

keys to the house - next cf. the maid she seemed honest

S.8. Class 1A (beginner)

Text 1.

telephoned - word stress wrong

managed - no fall, maintenance of pitch level, though breath taken here

good time - extra stress on good though both marked for stress

it's very strange - correct reduction of pre-tonic stresses

office - correct fall at end of text

Text 2.

barnes - no fall at break as required by non-defining clause following

robbed - no stress, but fall here since followed by dash

dramatically - wrong word stress

S.9. Class 2B (low intermediate)

Text 1. (see over)

Text 1.

Few stresses marked. Hesitant performance and absence of any real rhythm. Correct word pronunciation, but slow. Syntactic breaks clear only where dashes given.

Text 2.

Simple series of words with little sense (like child reading). Absence of any foreign rhythms also.

Text 3 and Text 4

Where more stresses, much better rhythm. S. able to follow own markings, especially in Text 4.

S.13 Class 2B (low intermediate)

Text 1.

much - no fall although required by syntax

Halting performance with few syntactic breaks. Few stresses marked for most of text.

Text 2.

property - he - no syntactic break though required.

Text 3.

Better performance aided by more stresses marked, but still not sufficient to make clear distinction between stressed-unstressed words.

S.14 Class 2B (low intermediate)

Text 1.

wife I've - held level, no fall where required by syntax.

it was quite - definite break here through pause, so giving nonsense meaning to sentence.

much she met - no break though required by syntax

Appendix III.4 (cont'd)

here try - no break at all, though even change of speaker, read as single clause.
Few stresses marked, but adds own in speaking at very regular intervals and has a good accurate rhythm, effect of hearing recording ?

Text 2.

barnes the man who - no break; debt almost certainly - no break
herself - inaccurate perception and production

Text 3.

Too few stresses - perhaps she is falling back on her own L1 pattern, in this case French.
on the second floor a door/opened a fact looked - as in Text 1., S. makes main stress then pauses as if at syntactic break, thus giving totally meaningless reading

Text 4.

Far more and accurate stresses and a much better performance.
australians - accurate perception and inaccurate production
refugees - accurate perception and accurate production
responsibility - accurate perception and production, but fails to drop pitch at syntactic break, though dash present
general - inaccurate perception and production
americans - inaccurate perception and production
release - accurate perception and production
hostages - accurate perception and production

Appendix III.4 (cont'd)

S.21. Class 4F (intermediate/good intermediate)

Text 1.

he told her meet - no syntactic break given

embarrassed what's - held level, no syntactic break given

S. follows own stresses accurately and gives very good rhythm to reading with syllables between main stresses weakened.

Text 2.

Very good rhythm and own stresses followed accurately.

Text 3.

into the darkness - good weakening of pre-tonic stresses

in this district - wrong word stress : obviously - wrong word stress;

excitement - correct, but clearly difficult.

Sentence stress for this passage excellent.

Text 4.

vietnamese - wrong word stress

refugees - wrong word stress

Where long complicated sequences with no stress guidance - united nations secretary .... -S. clearly falls back on word stress and staccato childlike effect.

S.29. Class 5A (FCE)

Text 1.

Very good reading and follows own accurate stresses.

telephoned - accurate word stress - accurately marked and produced

very much - syntactic break required and clearly made

good time - syntactic break required and clearly made

tickets it's very - no break, though required by syntax i.e. not completely able to use syntax at this level of English knowledge.

Appendix III.4 (cont'd)

remember - NB accurate perception, but inaccurate production

Text 2.

reports - accurate perception but inaccurate production

coins - syntactic break made where required

property - accurate perception but inaccurate production

Text 3.

alone - inaccurate perception, but accurate production

Text 4.

release - accurate perception but inaccurate production

Good use of syntax to make required breaks.

S.33. Class 5A (FCE)

Text 1.

wife - no fall, though required by sense and syntax

S. unable to stress and fall it seems

largely monotone with main stress only and no intonation or modulation*

between main stresses.

much - fall, as required by syntax

either - fall, indicated by dash following

Text 2.

debt - pitch kept high, though fall required

robbed - pitch kept high, though fall required by syntax

* 'Modulation' is used to refer to the manner in which native speakers control the speech contour between stresses e.g. for affective meaning.

Appendix III.4 (cont'd)

S.39. Class 1A (beginner - very weak)

Text 1.

Unintelligible after three lines, lines repeated without sense. Monotone but frequently able to introduce rhythm and produce regular main stresses. Hopeless with pronunciation and syntax.

S.55. Class 4F (good intermediate) - not in Part 1.

Text 1.

Definite syntactic breaks and main stresses, but rather too many. Good intonation with affective meaning.

remember - wrong word stress

then fred looked - stress not followed

Overall effect is rhythmic but with so many stresses almost syllabic at times.

Text 2.

syntax improves but stress marking is not followed at times.

she was in love - clear pre-tonic weakening, but stress marked as she was in love.

Text 3.

Most syntactic breaks: darkness - clear fall

milkman - wrong word stress

climbed - wrong word stress

shut again - wrong word stress

all syllables pronounced very clearly - insufficient weak forms at times

Text 4.

o'clock doctor - no break given

vietnamese - wrong word stress

responsibility - inaccurate perception and production, clear syntactic break.

Appendix III.4 (cont'd)

tehran - wrong word stress - given French pronunciation, accurate perception but inaccurate production.

united nations secretary general doctor ..... - wrong word and sentence stress.

S.56 Class 5A (FCE) not in Part 1.

Text 1.

monotone with few syntactic breaks. Correct pronunciation.

much - no fall though required by sense

Only main stress is clear and S. able to follow these, but absence of any rise/fall.

what's the matter - correct intonation for question

briefcase - no fall, though required

very few stresses - very slow performance

Text 2.

next there was the maid - no fall though required by sense and syntax

many years in jail - no fall

Text 3.

moment - correct fall where required

monotone for much of the text, with stresses as marked followed. Correct pronunciation.

Text 4.

Good stress in performance of this text. Syntactic breaks better than in other texts.

Appendix III.4 (cont'd)

Native Speakers

S.49

1. Clear modulation from stress to stress.
   Clear maintenance of regular rhythm in regular texts.
2. Clear active use of sense of text and syntax to make sentence and clause boundaries shown by rise/falls where appropriate.
3. S.49 had one of the highest agreements of all NS and reading closely follows sense of original recordings in all respects.

S.57

1. Clear modulation from main stress to main stress, but actual stress markings far more numerous than original, and in Text 3. different from the original at times.
2. Clear active use of syntax and sense as given by stress as marked to make sentence and clause boundaries shown by rise/falls where appropriate.
3. While syntactic breaks given, where stress marking differed from original, and read with this stress marking, this significantly altered the sense of certain passages in the text - especially Text 3. e.g. "in this district the doctors arrival obviously caused no more excitement than the visit of the milkman". The contrast in the original is clearly between doctor and milkman, but S.57 has blurred this contrast not only in her perception of it, but also in her reading of it. If there were blurring, or simply misperception, we would expect her reading to bring out the original sense of the sentence nonetheless and that she would give what may have been both sentence and word stresses their respective values, but this is not the case as shown by her recorded performance. We may say, perhaps, that S.57. shows that the sentence was intelligible, but that she did not fully understand it in all respects.

Appendix IV

PILOT EXPERIMENTS FOR EXPERIMENT 3

1. We shall present a brief description of two small-scale pilot experiments which were important in determining the most appropriate method and materials to be used in Experiment 3, (Chapter Five), but which would, in themselves, be inadequate as support for claims made in this present work.

We have yet to establish whether being able to match perceptually main stress as defined in the preceding experiments is a critical factor in the ability of native speakers and learners to decode spoken text and discourse in real time. Thus far, from the experimental evidence, we have suggested that there is a difference in ability to perceive main stress between NS and NNS (learners), that differences between NNS in ability to perceive main stress are not necessarily linked to knowledge of syntax, and that while intonation appears to be closely tied to knowledge of syntax and understanding of the text with regard to production, stress seems to be relatively independent - or at least complementary. We have also suggested from Experiment 2. that misperception of stress, or perception of too few or too many stress beats may lead to a reduction in intelligibility as manifested by readings of the text with stress as perceived, and that conversely, that regularising the occurrence of main stress (i.e. making it isochronous) may enhance the intelligibility of spoken text and discourse for both NS and NNS. The following trials and Experiment 3. were designed to provide empirical evidence on these two points.

2. Pilot Experiment 1. (PE1)

2.1 Design

The data from five subjects who had taken part in Experiment 1. were used to represent five conditions of stress beat or timing. Fred 19 (see

Appendix I.1), a 'regular' recording of the text was used for the experiment. The five conditions were:

i. NS stress marking (42 stress markings) @ 60 beats per minute.
ii. NNS slow stress marking (30 stress markings) @ 40 beats per minute.
iii. NNS fast stress marking (59 stress markings) @ 108 beats per minute.
iv. Word stress marking at 200 beats per minute.
v. Low agreement stress marking (41 stress markings) @ 60 beats per minute.

The original text for the preceding experiment had been recorded at 60 beats per minute, thus Condition i. was a close copy of this recording. The others, apart from Condition iv. corresponded to the way NNS subjects had indicated that they had perceived the stresses. All five conditions were recorded in the same time interval by changing the beat according to the number of stresses that had been marked. Time, therefore, remained a constant, with subjects as the independent variables and location and frequency of stress as the dependent variable.

2.2 Subjects, apparatus and materials

PE1 was carried out with four NS subjects aged from 15 to 23. The five conditions of stress and beat were recorded on cassette by a single speaker. The beat was held constant by using an electronic metronome (a Metrotone^{R}) which could be adjusted to give a beat from 40 per minute to 200 per minute. Subjects had no tapescript in this experiment.

2.3 Procedure

The four subjects were played the recordings of the different conditions with only a short pause after each recording. Each subject heard the recordings in a different order. They were asked after each recording to state how intelligible they had found the recording, allowing for the fact

that by the end the text had inevitably become more familiar. At the end, each subject was asked which recording they had found most easy to follow and most 'natural'.

2.4 Results and Discussion

Two subjects had difficulty in following the fast recording and the slow recording. One subject had no trouble with any of the recordings and was able to explain his technique in following the recordings. All subjects found the NS condition @ 60 beats per minute (Condition i.) the easiest to follow and the most 'natural'. The most successful subject stated that he was able to follow easily by the technique of maintaining an even and regular flow of sub-vocal speech which smoothed out the acceleration and deceleration in the fast and slow conditions and the low agreement condition caused by the irregular dispersal of stresses.

Clearly no claims can be made for the results of such an informal experiment as PE1. However, we have already shown in Experiment 1. (Chapter Five) that both NS and NNS perceive 'regular' stress not only with more frequency, but also with greater accuracy and agreement than 'authentic' stress. We now wish to see whether NNS perception of stress as noted, where in poor agreement with NS, could potentially cause a reduction in intelligibility, defined as ability to follow spoken discourse, which could be then tested under controlled conditions with a large number of NS and NNS subjects. While one may question the validity of using artificially regular stress timing for tests of comprehension, its very regularity does mean that it can be used in controlled experimental conditions with subsequent quantification of results much more easily than 'authentic' stress. Our argument will therefore be that if regularised speech (i.e. regular in terms of stress timing) @ 60 beats per minute (for example) is at least as intelligible as authentic speech, and that if altering the number and location of stresses reduces the

intelligibility of speech, then such techniques may have possible application in language learning, by permitting a perceptual grading of material to be heard and by suggesting simplified training procedures for increasing stress perception and consequent accuracy of message timing.

In PE1, the articulate subject indicated just how active the matching process may be (c.f. Chapter Four and the limitations of active theories of perception); that the listener may impose an internal structure on the message, the absence of which can hinder the following of connected discourse. It seems that those subjects who tried to follow 'passively' by relying on the discourse stress pattern could only cope with the regular stress pattern at 60 beats per minute[1].

3. Pilot Experiment 2. (PE2)

3.1 Design

NNS subjects were asked to listen to the same text recorded under three conditions and to decide which they found most intelligible (defined as 'easy to follow in terms of language'). They were also asked to listen to the recordings a second time at their own pace and decide again which they found most intelligible. The text used was Beeb 1/2 (see Appendix II.1) Experiment 1 (Chapter Five). As in PE1, the text was heard in different conditions which were derived from the data obtained in Experiment 1. In each condition the stress markings of NS or NNS subjects were strictly followed in order to reproduce the stress pattern that subjects appeared to have perceived. Time was held constant in all conditions and the number of beats

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1. It was interesting to note that this technique of actively matching could be transferred quite simply to the other NS by explanation, and in a subsequent test, one of the weaker subjects improved her performance dramatically.

per minute was adjusted to take account of whether there were more or fewer stresses marked than in the NS standard version of 84 stresses @ 60 beats per minute.

The seven conditions were as follows:

i. NS : 84 stresses @ 60 per minute.
ii. Fast I : 143 stresses @ 99 per minute.
iii. Fast II : 107 stresses @ 75 per minute.
iv. Slow I : 75 stresses @ 46 per minute.
v. Slow II : 75 stresses @ 46 per minute (different subject).
vi. Slow III : 80 stresses @ 50 per minute.
vii. Irregular : 84 @ 60 per minute.

Each subject heard the NS condition plus two others. The position of the NS condition varied from subject to subject.

3.2 Subjects, apparatus and materials

The subjects were six adult Chinese students and one adult Brazilian student. All were students at the Institute for Applied Language Studies, University of Edinburgh, and all were said to have a very good written and reading ability in English, but to be weak in spoken English and in aural comprehension. All were familiar with the use of the LL.

The experiment took place in the Tandberg IS9 LL of the Language Learning Centre of the University of Edinburgh. Cassettes had been pre-recorded using a Sony cassette recorder and an electronic metronome (see Experiment 1, Chapter Five) and a single speaker was used throughout. Subjects were not given tapescripts of the recordings. The recorded materials consisted of the following seven cassettes each with three conditions of the same text:

Cassette 1. : i. / ii. / vi.

Cassette 2. : ii. / i. / iv.

Cassette 3. : iii. / ii. / v.

Cassette 4. : iv. / v. / i.

Cassette 5. : ii. / iii. / i.

Cassette 6. : vii. / i. / ii.

Cassette 7. : v. / vii. / i.

3.3 Results and Discussion

Cassette 1. was used by the Brazilian subject. The remaining six were used by Chinese subjects.

The preference for conditions for both first and second runs were as follows:

Subject	1st run	Position on cassette	2nd run	Position
1.	NS	1	NS	1
2.	Fast (ii)	1	NS	2
3.	NS	2	NS	2
4.	NS	3	NS	3
5.	Fast (ii)	2	NS	3
6.	NS	2	NS	2
7.	NS	3	NS	3

Both subjects (2. and 5.) who preferred Fast conditions on the first run stated that this was because they were able to hear each word. The Fast condition recording implies a higher number of stresses marked than the NS recording, but as one of the subjects also stated, with consequent loss of naturalness. Both changed preference to the NS condition after the self-paced run, and one stated that the NS condition sounded natural and felt 'comfortable'. In the case of the remaining condition, Slow I. @ 46 per minute,

the subject stated that it felt like being in a car, speeding up and slowing down, and therefore 'uncomfortable'.

The subjective judgements of the subjects indicated a very marked preference for the NS condition, which was the condition used for the original stress marking experiment (Experiment 1, Chapter Five). The comments also suggest that this condition may be an acceptable version of normal spoken English to learners, while the irregular condition, which in fact mirrors our normal accelerating and decelerating process from one breath group to another, was not preferred by any of the subjects. The subjects' perceptions in this pilot experiment coped best not only with a 60 beat per minute timing, but also, since there were two versions of this beat (condition i. and condition vii.), with the version that came closest to the original stress marking of the authentic reading, in which there was also relatively regular stress/non-stress spacing (that is, in this case, a ratio of 1 : 3 stressed to unstressed words, with not more than five words between stressed words at any point), and in which breath pauses came at natural syntactic or sense boundaries.

The implication of these very tentative findings, given the low number of subjects, and the high possibility of contamination of results, is that there may be a critical number of stresses that should be regularised in any stretch of connected text or discourse in order to preserve maximum coherence (intelligibility) and 'comfort' (ease of listening task) for learners of English, and that this number and the location of the stresses should be closely related to those of the authentic text or discourse, which will in turn be acting on and with the syntax[2]. This implication will be

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2. See Lehiste (1973) and Allen (1968) in Chapter Four.

tested further in Experiment 3 (Chapter Five). As was seen in Experiment 2 (Chapter Five), if there are too many stresses, then while individual words may sound clear, the message no longer sounds like connected discourse and loses both cohesion and coherence as channel capacity becomes blocked with separate bits of information. If there are too few, intelligibility between stresses is lost at certain points, especially where polysyllabic word stress is not given, and where syntactic and sense boundaries are not clear[3].

As stated in the Introduction to this section, both Pilot Experiments were used primarily as indicators for techniques and materials for use in Experiment 3, (Chapter Five), which is concerned with investigating the link between stress and "intelligibility" and "understanding". The Pilot Experiments and the results suggest that vocal and sub-vocal shadowing techniques are acceptable to NS as a means of measuring intelligibility, and also that a native speaker reading at 60 beats/main-silent stresses per minute with a spacing of approximately 3 : 1 non-stress to stress ratio can be used as a standard in Experiment 3. We might expect that other beats with the same ratio or the same beat with a higher or lower ratio of stress to non-stress would reduce potential intelligibility of the perceived message.

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3. Continuing the analogy with tennis, one might propose the notion of perceptual relativity (c.f. Note 5. in Chapter Four on Adaptation Level Theory) in which how fast the listener thinks the stresses are coming, and whether he can process the information from one stress or breath pause to another are of central importance. This would explain why some conditions can be described as 'comfortable' or conversely 'uncomfortable', why rapid input of information can be coped with in one condition rather than another, and also why a ratio of given to new information is a crucial factor in both pacing and spacing of stresses. With low ratios (high given/low new) one would expect fewer stresses, and consequent loss of intelligibility for the listener who was receiving the discourse in the opposite ratio. This listener would perceive the message at a relatively faster rate than the listener who was perceiving the message at the same given/new ratio as that intended by the speaker.

Appendix VI.1 COURSE MATERIALS

STRESS ON LISTENING

Robert Vanderplank

Set 1.

Practice 1. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

Underline the part of the word which you hear more loudly or clearly as you listen to the following words: (UNDERLINE STRESS in Practice 2 - 10)

PICTURE LISTEN WEEKDAYS SHORTER WRITTEN CAREFULLY

CORRECT DIFFERENT BETWEEN UNDERLINE TOGETHER CONVERSATION

Practise reading the words in the way you have marked them, while listening to the recording. (PRACTISE STRESS in Practice 2 - 10)

To check your marking of the words, listen to the second recording. This has a beat where the stress mark should be in each word. If you have made any errors, practise again while listening to the first recording. (CHECK STRESS in Practice 2 - 10)

B. Dynamic Practice

As you hear the following passage, underline the word or the part of the word which you hear more loudly or clearly. You will hear one word or part of a word more loudly or clearly approximately every second: (UNDERLINE STRESS)

LOOK AT THE PICTURE IN YOUR BOOK LISTEN TO A CONVERSATION BETWEEN TWO MEN ONE OF THEM IS CALLED JOHN YOU MUST LISTEN AND FIND OUT WHAT HE DOES ON THE DIFFERENT DAYS OF THE WEEK UNDER EACH PICTURE YOU CAN SEE THE NAMES OF THE WEEKDAYS WRITTEN IN A SHORTER FORM YOU MUST UNDERLINE THE NAME OF THE DAY WHICH GOES TOGETHER WITH THE PICTURE LISTEN VERY CAREFULLY AND THEN UNDERLINE THE NAME OF THE CORRECT DAY UNDER EACH PICTURE

(81 words)

When you are satisfied with the way you have marked the text, practise reading the text in the way that you have marked it, saying the words or parts of the words that you have marked more loudly and clearly and trying to keep approximately one second between each one. (PRACTISE STRESS)

Then mark the text for any breaks or pauses that you think it may need. Use commas and full stops. Practise reading the text again, and when you are satisfied with your reading, record your reading while following the first recording of the text. Then compare your recording with the first recording. (COMPARE STRESS in Practice 2 - 10)

To check your underlining of the words or parts of words, listen to the second recording. This has a beat where the word or part of the word should be. If you have made any errors, practise again using this recording, and then re-record with the first recording. (CHECK STRESS)

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 2

Set 1.

Practice 2. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS : Listen and underline the louder or clearer part of each word.

PICTURE PEOPLE ASKING OTHER PLACES TALKING ALWAYS
OUTSIDE RAILWAY STATION FOLLOW BUILDING ARRIVE DIFFERENT
BOTTOM LISTEN NUMBERS CORRECT VARIOUS INSTRUCTIONS
REMEMBER RAILWAY STATION

PRACTISE STRESS : Practise reading the words while listening to the recording.

CHECK STRESS : Listen to the second recording and check your underlining. Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS : Listen and underline each word or part of a word which you hear more loudly or clearly.

LOOK AT THE PICTURE THIS TIME YOU WILL HEAR SOME PEOPLE ON THE TAPE ASKING EACH OTHER THE WAY TO VARIOUS PLACES THE PEOPLE WHO ARE TALKING ARE ALWAYS OUTSIDE THE RAILWAY STATION FOR EXAMPLE FIRST YOU'LL HEAR A MAN ASKING THE WAY TO THE BANK YOU MUST THEN FOLLOW THE INSTRUCTIONS AND WRITE NUMBER ONE ON THE BUILDING YOU ARRIVE AT YOU CAN SEE A LIST OF THE DIFFERENT BUILDINGS AT THE BOTTOM OF THE PAGE YOU MUST NOW LISTEN TO THE INSTRUCTIONS ON THE TAPE LOOK AT YOUR MAP AND WRITE THE NUMBERS YOU HEAR ON THE CORRECT BUILDING REMEMBER YOU MUST ALWAYS START FROM THE RAILWAY STATION

PRACTISE STRESS: Practise reading the text in the way that you have marked it with marked words or parts of words louder and clearer than other words or parts of words.

COMPARE STRESS: Mark pauses or breaks with commas and full stops. Record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining with the beat of the recording. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 3

Set 1.

Practice 3. Pace : 60 beats per minute Space 2 - 1

A. Static Practice

UNDERLINE STRESS : Listen and underline the part of each word which you hear more loudly or clearly.

SOMEONE HELLO EASY DIFFERENT ABLE LISTEN CAREFULLY
GOING ABOUT FIFTEEN ANSWERS ALSO WRITTEN PAGES
TWENTY BESIDE AGAIN ONLY IMPORTANT POSSIBLE TWENTY-FIVE
SITUATION

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

WHEN YOU MEET SOMEONE YOU KNOW YOU SAY HELLO THAT'S EASY WHEN YOU LEAVE YOUR FRIEND YOU SAY SOMETHING DIFFERENT IT'S IMPORTANT TO BE ABLE TO SAY THE RIGHT THING AT THE RIGHT TIME LISTEN CAREFULLY YOU ARE GOING TO HEAR ABOUT FIFTEEN DIFFERENT SITUATIONS AND YOU MUST CHOOSE WHAT TO SAY IN EACH OF THEM YOU'LL HEAR THREE POSSIBLE ANSWERS TO HELP YOU BUT ONLY ONE OF THEM IS RIGHT THESE THREE ANSWERS ARE ALSO WRITTEN DOWN IN YOUR BOOK ON PAGES TWENTY-FIVE AND TWENTY-SIX WHEN YOU HAVE HEARD THE THREE ANSWERS PUT A CROSS BESIDE THE RIGHT ONE THEN LISTEN AGAIN AND YOU'LL HEAR ABOUT THE NEXT SITUATION THERE ARE FIFTEEN SITUATIONS AND YOU'LL HEAR THEM ONLY ONCE HERE IS THE FIRST ONE

(124 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 4

Set 1.

Practice 4. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

TWENTY PIECES BETWEEN STUDENTS OTHER NUMBERED
ANSWER QUESTION STATEMENTS SOMETIMES EITHER SECOND
LISTENED CIRCLE LETTER AFTER FOLLOWS LISTEN
EXAMPLE TWENTY-FOUR CONVERSATION

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practise

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

IN THIS TEST YOU WILL HEAR TWENTY-FOUR PIECES OF CONVERSATION BETWEEN TWO STUDENTS JOHN AND MARY FIRST ONE SPEAKS AND THEN THE OTHER EACH PIECE OF CONVERSATION IS NUMBERED AND AFTER EACH PIECE YOU SHOULD ANSWER THE QUESTION ON YOUR ANSWER PAPER FOR EACH QUESTION THERE ARE TWO STATEMENTS SOMETIMES BOTH ARE RIGHT SOMETIMES BOTH ARE WRONG SOMETIMES EITHER THE FIRST OR THE SECOND IS RIGHT AND THE OTHER WRONG WHEN YOU HAVE LISTENED TWICE TO THE PIECE OF CONVERSATION READ THE STATEMENTS IF YOU THINK A STATEMENT IS RIGHT OR TRUE PUT A CIRCLE ROUND THE LETTER T AFTER THE STATEMENT IF YOU THINK THE STATEMENT IS WRONG OR FALSE PUT A CIRCLE ROUND THE LETTER F WHICH FOLLOWS THE STATEMENT LET US LISTEN TO THIS EXAMPLE
(130 words)

PRACTISE STRESS: Practise reading the test in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 5

Set 1.

Practice 5. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

TODAY GOING ABOUT ENGLISH BREAKFAST OFTEN VERY
LARGER ENGLAND PICTURES DISHES NUMBER BEFORE ALSO
WOMAN ORDERING RESTAURANT DURING PAYING EXPENSIVE
SELF-SERVICE DESCRIPTION CONTINENTAL CONVERSATION

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

TODAY WE'RE GOING TO TALK ABOUT THE ENGLISH BREAKFAST AND SEE WHAT YOU KNOW ABOUT IT THE ENGLISH BREAKFAST IS OFTEN A VERY LARGE MEAL MUCH LARGER THAN THE CONTINENTAL ONE LET'S SEE WHAT CHOICE OF BREAKFAST THERE IS IN ENGLAND LOOK AT THE PICTURES ON PAGE EIGHT OF YOUR BOOK AND MARK THE DISHES WE TALK ABOUT WITH THE NUMBER YOU HEAR BEFORE EACH DESCRIPTION WE'RE ALSO GOING TO LISTEN TO A MAN AND WOMAN ORDERING THEIR BREAKFAST AT A SELF-SERVICE RESTAURANT YOU HAVE TO LISTEN TO WHAT THEY SAY AND FIND OUT WHAT THEY CHOOSE FOR BREAKFAST AND HOW EXPENSIVE IT IS WRITE THE NUMBER OF EACH DISH ON THE BILLS ON PAGE EIGHT AND THEN WRITE THE PRICE OF EACH DISH TOO YOU'LL HEAR THIS PRICE TWICE ONCE DURING THE CONVERSATION AND THEN WHEN THEY ARE PAYING AT THE CASH DESK THEN YOU MUST WORK OUT HOW MUCH THEY HAVE TO PAY HOW MUCH THEY GIVE TO THE GIRL AT THE CASH DESK AND HOW MUCH THEY GET BACK

(173 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 6

Set 1.

Practice 6. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS : Listen and underline the part of each word which you hear more loudly or clearly.

EXCUSE TRYING UNTIL TRAFFIC CORNER ZEBRA CROSSING

ZEBRA CROSSING

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS : Listen and underline each word or part of a word which you hear more loudly or clearly.

EXCUSE ME I'M TRYING TO GET TO GEORGE SQUARE GEORGE SQUARE OH THAT'S QUITE NEAR HERE JUST GO UP THE HIGH STREET UNTIL YOU COME TO THE FIRST SET OF TRAFFIC LIGHTS YOU'LL SEE A PHONE BOX ON THE CORNER OF A STREET ON YOUR RIGHT GO UP THAT STREET PAST THE ZEBRA CROSSING UNTIL YOU COME TO THE BRIDGE AND THEN I CROSS THE BRIDGE NO YOU DON'T HAVE TO DO THAT GEORGE SQUARE IS RIGHT AT THE END OF THE STREET ON THE RIGHT HAND SIDE THANKS A LOT

(90 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

STRESS ON LISTENING

Set 1 Practice 7

Set 1.

Practice 7. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS : Listen and underline the part of each word which you hear more loudly or clearly.

LONDON DOING DIAL OUTSIDE DIALLED NUMBER PEOPLE ISN'T STUPID RINGING HELLO SEVEN TELEPHONE CORRECTLY REMEMBER

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.

Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS : Listen and underline each word or part of a word which you hear more loudly or clearly.

I WANT TO TELEPHONE LONDON BUT I DON'T SEEM TO BE DOING IT CORRECTLY WELL FIRST YOU MUST DIAL NINE TO GET AN OUTSIDE LINE OH I SEE I JUST DIALLED MY NUMBER IT'S TWO TWO FIVE SEVEN OH SEVEN SIX RIGHT THEN YOU MUST DIAL THE CODE FOR LONDON AS WELL THE NUMBER YOU HAVE IS FOR PEOPLE WHO LIVE IN LONDON FIRST DIAL THE CODE FOR LONDON WHICH IS OH ONE THEN DIAL TWO TWO FIVE SEVEN OH SEVEN SIX LET'S TRY OH ONE NO WAIT REMEMBER TO DIAL NINE FIRST AND THEN THE NUMBER YOU WANT THIS ISN'T AN OUTSIDE LINE OH YES HOW STUPID OF ME RIGHT OH ONE TWO TWO FIVE SEVEN OH SEVEN SIX OH YES IT'S RINGING HELLO IT'S ME

(118 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 8

Set 1.

Practice 8. Pace : 60 beats per minute Space: 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

MACHINE BUTTON REWIND CASSETTE COUNTER ZERO PUSHING LITTLE CONTROL GOING LISTEN CAREFULLY SPEAKER REPLY WOMAN'S BEGINNING ALREADY ANYTHING DIALOGUES SITUATION AUTOMATICALLY

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

FIRST YOU SWITCH ON YOUR MACHINE IT'S THE BUTTON ON THE RIGHT HAND SIDE YES I SEE IT A RED LIGHT COMES ON YES THAT'S RIGHT THEN YOU PUSH THE BUTTON MARKED REWIND TO BRING YOUR CASSETTE BACK TO THE BEGINNING IT STOPS AUTOMATICALLY MY TAPE IS ALREADY AT THE BEGINNING FINE SET THE COUNTER TO ZERO BY PUSHING THE LITTLE BUTTON NEXT TO IT RIGHT IT STILL HAVE CONTROL OF YOUR MACHINE MY TAPE IS GOING ROUND BUT I CAN'T HEAR ANYTHING AH PUSH THE SPEAK BUTTON IT'S JUST THE BEGINNING OF THE DIALOGUES LISTEN CAREFULLY TO WHAT THE FIRST SPEAKER SAYS AND THEN REPLY AS IF YOU WERE IN THE SITUATION AH YES I CAN HEAR THE SPEAKER NOW IT'S A WOMAN'S VOICE

(125 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 9

Set 1.

Practice 9. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

MORNING TRYING TUTOR SUBJECT AUTHOR TITLE OVER VOLUMES LIBRARY ORDER BORROW ISN'T ONLY UNTIL UNLESS SOMEONE WITHIN CATALOGUE ACCORDING REFERENCE BORROWING CATALOGUES ALPHABETIC

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

GOOD MORNING I'M TRYING TO FIND A BOOK THAT MY TUTOR WANTS ME TO READ WELL YOU CAN LOOK IT UP IN THE SUBJECT CATALOGUE FIRST OF ALL IF YOU LIKE I'VE GOT THE NAME OF THE AUTHOR AND THE TITLE IN THAT CASE GO OVER TO THE BIG VOLUMES NEAR THE DOOR THEY HAVE ALL THE BOOKS IN THE LIBRARY ACCORDING TO AUTHOR IN ALPHABETIC ORDER I SEE AND THEN I WOULD LIKE TO BORROW THE BOOK YES WELL IF IT ISN'T FOR REFERENCE ONLY YOU CAN FILL IN A BORROWING FORM AND TAKE IT WITH THE BOOK TO THE DESK HOW LONG CAN I KEEP IT FOR UNTIL NEXT JUNE UNLESS SOMEONE WANTS IT THEN YOU MUST BRING IT BACK WITHIN THREE DAYS LET'S SEE I FIND THE BOOK IN THE AUTHOR CATALOGUES THEN GET THE BOOK FROM THE SHELVES THEN FILL IN A FORM AND GIVE IT TO SOMEONE AT THIS DESK YES THAT'S RIGHT

(159 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.

Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 1 Practice 10

Set 1.

Practice 10. Pace : 60 beats per minute Space : 2 - 1

A. Static Practice

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

MENTION SITTING QUIET AFTER WORRY BEFORE BATHROOM
MORNING BASIN BREAKFAST FIFTEEN COFFEE GOING INTO CARPET
SLIPPERS LASTLY PEOPLE SOMETIMES BISCUITS PROMISE SITTING-ROOM
USUALLY REMEMBER NORMALLY COMFORTABLE TELEVISION

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice

UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

NOW THERE ARE JUST A FEW SMALL POINTS I'D LIKE TO MENTION I SEE YOU CAN WATCH THE TELEVISION IN THE SITTING-ROOM BUT PLEASE KEEP IT QUIET AFTER ELEVEN O'CLOCK DON'T WORRY I USUALLY GO TO BED BEFORE ELEVEN GOOD NOW THE BATHROOM PLEASE TRY TO USE THE BATHROOM BEFORE EIGHT O'CLOCK IN THE MORNING AND CLEAN THE WASH BASIN AFTER YOU WE HAVE BREAKFAST AT EIGHT FIFTEEN SHARP EIGHT FIFTEEN THAT'S FINE I MUST BE AT WORK BY NINE FIFTEEN AND USUALLY I JUST HAVE TOAST AND COFFE WHAT ELSE AH YES DO REMEMBER TO CHANGE YOUR SHOES BEFORE GOING INTO THE SITTING-ROOM THERE'S A WHITE CARPET ON THE FLOOR OF COURSE I NORMALLY WEAR SLIPPERS AT HOME AND I HAVE THEM WITH ME HERE LASTLY DON'T GIVE ANY FOOD TO THE DOG PEOPLE SOMETIMES GIVE HIM BISCUITS BUT THEY MAKE HIM ILL I PROMISE I WON'T I'M SURE I SHALL BE VERY COMFORTABLE HERE

(155 words)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

Set 1. Test Battery

Set 1. Test 1. (five minutes)

1. UNDERLINE STRESS: Listen and underline each word or part of a word which you hear more loudly or clearly.

look at the picture in your book on page eighteen listen and you will hear a man and his wife talking to some visitors about the various rooms in the house each time they talk about a room you must mark the room with the correct number you'll hear a bell before they go into a different room as you can see in your books there are pictures of twelve rooms but you'll only hear a description of six rooms so you must listen and look very carefully before you mark the rooms

2. MARK PAUSES AND BREAKS: Mark silent stresses with ^ and also mark pauses and breaks with full stops and commas.

Set 1. Test 2. (five minutes)

1. FILL IN MISSING WORDS: Listen to the following passage and fill in the words which are missing in the tapescript below.

..... this ..... you will ..... twenty five ..... of conversation ..... two students you are ..... to hear about ..... situations and you must ..... what to say in ..... of them ..... the correct statement after ..... answer in ..... book ..... pages fifteen look .... your book ..... listen .... instructions ..... hear ..... description twice ..... you ..... put ..... circle around ..... letter ..... follows the question

Set 1. Test 3.

1. ESTIMATE INTELLIGIBILITY AND UNDERSTANDING: Listen to the following passages and decide how well you can follow each passage and how well you think you can understand them.

	P.1		P.2		P.3	
	I	U	I	U	I	U
100%: able to follow completely						
fully understand						
75%: able to follow almost completely						
less than fully confident understanding						
50%: able to follow but with some omissions and difficulties						
passage only half understood						
25%: frequent omissions and difficulties/ poor understanding						
0%: barely able to follow/no understanding						

2. FOLLOW OUT LOUD: You will hear the three passages again. This time say what you hear into your microphone as you are hearing it. If you miss something, do not stop. Continue to say what you can hear until the end of the passage.

Set 1. Test Battery KEY

Test 3.

1. In this question you must speak your answers. We want you to answer the woman who speaks to you. You are arriving at a railway station. Your friend is meeting you. She is asking you about the journey. Listen to her questions and answer them. The first one is done for you. Listen. Hello there. How are you. Hello there How are you. Now you do the same. Answer her questions. Do the first one for practice.

2. In this question you must read aloud. You have decided to spend tomorrow evening with Tony. You have an English friend who might telephone you. You ring him and give him this message. You must read aloud what you see in your book. This is question five. Look at it first. Do not speak yet.

3. In this section we test how well you can speak freely. You will be marked on the correctness of your English, the words you use and the way you speak. Please look at the pictures. You have two minutes to think about what you are going to say and then two minutes to tell the story in your own words: Last summer Peter and Mary Ford went on a long holiday.

APPENDIX V.1 Estimated Percentage "Intelligibility" and "Understanding" of Recorded Passages by NS and NNS

SUBJECT	1		2		3		4		5		6		7		8		9		10		11		12		13	
	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %
R.1 (U. of Edinburgh)	80	80	10	10	75	75	100	100	100	100	100	100	100	100	100	100	100	100	50	50	50	25	85	85	15	15
R.2 (REED)	30	20	60	30	25	25	50	50	35	35	75	25	30	50	50	25	50	40	50	50	75	75	15	15	60	10
R.3 (BLOON)	0	0	20	15	25	25	30	30	10	10	25	0	30	40	50	30	40	25	25	25	25	25	0	0	35	10
R.4 (OPTIC)	30	20	45	10	50	50	50	50	50	0	75	50	50	20	30	25	50	50	25	25	35	25	10	10	60	35
R.5 (BOROS I)	50	25	20	5	75	25	50	50	5	0	75	25	75	25	40	30	75	25	0	0	35	25	40	0	85	10
R.6 (FRED)	60	30	70	45	60	0	25	25	30	30	50	50	75	75	40	10	75	75	75	75	65	65	35	35	85	60
R.7 (BEEB 1/2)	70	50	60	45	75	25	25	25	60	60	50	0	25	40	40	55	90	75	25	25	35	25	35	35	85	60
R.8 (BEEB 3/4)	75	50	50	50	75	75	25	25	30	30	90	50	70	75	55	55	90	70	25	25	25	20	35	35	85	60
R.9 (BOROS II)	45	20	50	20	50	25	0	0	30	15	75	25	50	20	50	10	70	25	0	0	25	10	0	0	85	35
R.10 (NORTH WIND)	0	0	0	0	-		-		0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

14		15		16		17		18		19		20		21		22		23		24		25		NS 26		27		NS 28		NS 29		NS 30	
I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %	I %	U %
90	90		–	90	90	0	0	0	0	80	100	0	0	15	15	0	0	0	0	20	65	20	0	100	100	0	0	100	100	–		100	100
70	30	15	15	80	80	75	75	75	85	80	75	75	25	75	55	50	75	65	65	30	45	40	20	100	100	75	75	100	90	60	100	90	90
35	35		–	30	30	75	75	25	35	75	75	25	25	65	75	25	50	35	35	20	30	45	70	75	100	50	25	75	75	100	100	40	30
65	65	30	10	80	80	75	75	25	10	50	50	50	50	75	50	75	90	60	35	30	40	50	75	75	100	75	95	80	80	80	100	50	50
85	0	30	10	100	25	80	65	25	35	80	75	75	10	75	35	50	50	95	50	45	55	95	30	100	65	90	50	90	80	90	100	80	50
60	35	60	25	90	90	90	90	75	75	75	75	75	50	75	75	75	90	95	65	55	70	95	55	100	100	100	100	100	100	100	100	40	60
80	80	25	25	50	50	95	95	50	50	90	100	50	50	75	25	75	80	95	65	65	70	80	55	100	100	75	50	100	100	100	100	60	80
80	70	25	25	80	30	95	95	25	50	90	100	75	25	75	50	75	80	95	95	70	80	100	90	100	100	55	50	100	100	100	100	70	80
80	10	10	10	100	30	95	70	20	0	75	50	90	25	75	25	50	50	70	40	70	70	100	60	100	65	85	70	–		–		–	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	100	15	0	25	25	–		30	30

NS 31		32	
I %	U %	I %	U %
100	100	-	
100	85	85	85
100	100	80	90
100	100	75	75
100	40	85	75
100	100	65	65
95	60	80	80
100	75	85	85
100	20	-	
0	0	90	90

APPENDIX V.2. Correct and Total (Correct + Incorrect Shadowing) Scores for NNS Expressed as Percentages.

PASSAGE	SUBJECT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	27	32
R 2	CORRECT	54	35	19	9	45	26	39	87	49	47	51	28	40	70	48	87	28	43	36	40	43	NR	37	51	NR	NR	49
TOTAL	CORRECT + INCORRECT	69	41	26	9	52	51	54	90	59	57	56	37	50	89	55	91	42	54	56	44	51	NR	44	59	NR	NR	58
R 3	CORRECT	25	14	15	NR	19	NR	18	35	23	NR	14	18	20	48	16	39	15	15	14	14	19	NR	NR	39	2	NR	37
	TOTAL	30	17	19	NR	22	NR	23	40	27	NR	19	22	25	52	23	45	19	20	20	14	22	NR	NR	44	2	NR	39
R 4	CORRECT	18	20	19	NR	26	20	22	38	35	NR	27	36	30	50	33	51	29	28	34	37	18	NR	19	37	29	NR	34
	TOTAL	22	26	24	NR	29	44	33	47	46	NR	35	42	48	64	38	56	33	37	50	42	22	NR	28	50	32	NR	37
R 5	CORRECT	54	38	NR	NR	46	NR	49	73	62	9	13	57	46	81	46	73	29	52	63	48	62	NR	30	68	40	NR	44
	TOTAL	59	41	NR	NR	52	NR	59	79	70	9	17	64	57	93	59	80	32	64	71	52	76	NR	35	82	40	NR	49
R 6	CORRECT	12	23	NR	NR	33	NR	30	40	36	NR	11	29	29	36	28	36	20	14	NR	29	32	21	20	34	22	NR	27
	TOTAL	14	25	NR	NR	36	NR	38	47	42	NR	11	29	45	46	32	39	24	16	NR	30	45	25	26	47	22	NR	35
R 7	CORRECT	27	24	NR	16	26	NR	30	44	30	NR	5	40	30	60	24	50	19	23	36	33	44	26	NR	38	28	NR	35
	TOTAL	27	26	NR	17	31	NR	32	47	35	NR	5	45	36	81	34	54	21	25	41	36	62	29	NR	53	29	NR	38
R 8	CORRECT	48	40	NR	53	47	NR	47	59	53	NR	18	62	47	78	38	61	36	52	38	42	62	44	29	57	45	NR	51
	TOTAL	67	50	NR	61	52	NR	55	65	52	NR	21	68	61	94	52	65	42	59	55	50	71	52	38	69	48	NR	53
R 9	CORRECT	21	39	NR	6	35	NR	38	67	43	NR	NR	NR	37	78	47	70	NR	51	45	47	82	NR	NR	63	NR	NR	49
	TOTAL	25	44	NR	9	38	NR	50	76	55	NR	NR	NR	54	85	54	71	NR	54	56	53	86	NR	NR	80	NR	NR	51

NR = Shadowing not recorded.

STRESS ON LISTENING

Set 2. Unit 1.

Pace : 60 beats per minute Space: 3 - 1

A. Static Practice Passage A

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

family breakfast every morning apart always together evening puddings cheaper garden nobody vegetables old-fashioned everybody

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice Passage A

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear more loudly or clearly.

my family's a bit old-fashioned so usually they have a roast on sundays erm dad and roy have a cooked breakfast every morning lunch well nobody's home apart from mum and then we always have dinner together in the evening we don't eat many puddings just the main meal that's all but it's always meat and vegetables not one veg two three four veg we're great meat and vegetable people because it's cheaper over there as well and everybody's got their own garden so there's plenty of veg
(89 words)

PRACTISE STRESS: Practise reading the text the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your recording.

Passage B

Static Practice

UNDERLINE STRESS: As you listen, underline the part of each word which you think is said with more effort or energy than the other part or parts.

breakfast bacon sausage orange believe either during people little maybe sundays weekend perhaps tomato marmalade cereal cereals probably saturday tradition

PRACTISE STRESS: Practise reading the words in the way that you have underlined them.

CHECK STRESS: Listen to the second recording to check whether you have underlined the words correctly.

Dynamic Practice

UNDERLINE STRESS: As you listen to the following dialogue, underline each word or part of each word which you think is said with more effort or energy. Mark silent stresses ^ , pauses and sentence breaks.

A : We know breakfast bacon sausage and half a tomato and then orange juice and toast with marmalade and a cereal

B : No I don't believe that they've either got I mean during the week most people have erm cereals or a probably a cup of tea and a little bit of toast and marmalade

A : Toast yes that's what I think

B : And maybe on saturday and on sundays

A : On the weekend perhaps

B : They will have erm a full english breakfast just to keep up the tradition

PRACTISE STRESS: Practise reading the dialogue in the way that you have marked it. That is, you must say the part of each word that you have underlined with more effort or energy than the other parts. Remember to let your voice fall at the ends of sentences.

COMPARE STRESS: Record your own reading of the dialogue and compare it with the first recording. Correct errors in underlining and any silent stresses which have been left out.

CHECK STRESS: Check your final corrected version with the second recording.

Ask your teacher to listen when you think that your reading is the same as the recording and that the way that you have marked the dialogue corresponds to the stresses given in the recording.

C. Intelligibility Practice Passage C.

LISTEN AND FOLLOW : Listen to the following passage and try to decide how well you can follow the language of the passage.

		Words 1 - 100	Words 101 - 201
100%:	Able to follow completely	:	
75%:	Able to follow almost completely bur with some omissions	:	
50%:	Able to follow about half or more of the passage but with frequent omissions	:	
25%:	Only able to follow occasionally, that is, as a few words and phrases	:	
0%:	Barely able to follow. Just an occasional word or phrase	:	

LISTEN AND SHADOW Passage C.

Listen and say what you hear aloud as you hear it. If you miss a word or phrase, do not stop, but go on until the end. Check your recording with the text.

CHECK SHADOWING: Passage C.

Listen to your recording and underline those parts of the text that you have shadowed correctly with a straight line. Underline parts shadowed incorrectly with a wavy line : ~~~~~. Then compare estimate for following with performance for shadowing.

The park consists of two and a half thousand acres and basically I patrol this on foot. What we do, or what I do is, my job is to conserve the wild life. The park is, in actual fact, an artificial environment, but the Department likes to keep it as much a natural environment as it possibly can be. Now it's practically impossible for it to be a natural environment because we're surrounded by something like a million and a half people and it's only two and a half thousand acres. This has to support, at the moment, nine hundred deer.//

Now nine hundred deer quite reasonably could survive on two and a half thousand acres without any feed additives, but you must take out of the two and a half thousand acres, twenty-one mile of road, eight large car parks, something like twelve lodges - my lodge is the largest lodge and the largest garden has roughly an acre of ground. So, if you allow even half an acre, you start taking out another six acres. You've got somewhere in the region of forty acres of ponds, not in all one lump. There's several ponds. And there's the golf course, which is five hundred acres .....

UNDERLINE/PRACTISE/COMPARE STRESS Passage C.

Listen to passage C. again. Underline louder or clearer words or parts of words. Practise reading the way you have marked the text while listening to the recording. They should be simultaneous.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 2 Practice 2

Pace : 60 beats per minute Space : 3 - 1

A. Static Practice Passage A.

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

always wanted pilot shattered nothing friday myself
going college couple teaching people talking notice
physics teachers applied letter tuesday saying present
medical suddenly notice-board advertised following afternoon
interview decided

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.

Correct any errors and practise again.

B. Dynamic Practice Passage A.

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear more loudly or clearly.

I always wanted to be an airline pilot and went for all the tests to be an airline pilot and I passed all the tests but I failed on the medical and so suddenly I was left with all my hopes shattered and nothing to do and this was on the friday and I thought to myself well what am I going to do I leave college in a couple of months I've got no job and I had thought of teaching er I like people and I like talking and I saw on the notice-board at college there were three jobs advertised for physics teachers for the following year and I applied for all three of them that was on the friday afternoon and I got a letter back on the tuesday saying please come for interview and I got my present job the following day so in four days I'd decided what to do and got my first job

(161 words)

PRACTISE STRESS: Practise reading the text the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

Set 2 Practice 2 (cont'd)

A. Static Practice Passage B

UNDERLINE STRESS: Listen and underline the part of each word which you think is said with more effort or energy.

yourself china peking lectures also research teaching students classes centre between very city married children britain colleagues canton further perhaps famous people shanghai chinese cities unknown excuse going class actually exactly lecturer devoted practical another complicated university

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice Passage B

UNDERLINE STRESS: Listen and underline each word or part of each word which you think is said with more effort or energy.

A : Could you tell us about yourself and china.

B : Well as you know my name is cho and I'm from china I actually come from the south of china but I live in peking now and work at the university.

A : And what exactly do you do there are you a lecturer.

B : It's quite complicated I give some lectures and also do some research but most of my time is devoted to teaching students in practical classes.

A : I see and do you live in the centre of Peking.

B : Quite near between the centre and the university but as you know Peking is a very large city.

A : And are you married.

B : Yes I am I've been married for ten years and we have two children a boy and a girl.

A : That's very nice though you must miss them here in britain is your colleague also from peking.

B : No he's from canton a large city which is much further to the south and quite close to hong kong perhaps you've heard of it.

A : Oh yes it's a very famous city I think most people have heard of peking shanghai and canton even if the other chinese cities are unknown to them.

B : Excuse me I must be going I have another class.

PRACTISE STRESS: Practise reading the dialogue the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record <u>your own</u> reading while following the first recording, then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.

Correct errors, practise with this recording, then re-record your own reading.

Set 2. Practice 2. (cont'd)

C. Intelligibility Practice Passage C.

LISTEN AND FOLLOW : Listen to the following passage and try to decide how well you can follow the language of the passage.

	Words 1 - 90	Words 91 - 180
100% : able to follow completely	:	
75% : able to follow almost completely but with some omissions	:	
50% : able to follow about half or more but with frequent omissions	:	
25% : only able to follow occasionally, that is, as a few words and phrases	:	
0% : barely able to follow. Just an occasional word or phrase	:	

COMMENTS:

LISTEN AND SHADOW Passage C

Listen and say what you hear aloud as you hear it. If you miss a word or phrase, do not stop, but go on until the end. Check your recording with the text.

CHECK SHADOWING Passage C.

Listen to your recording and underline those parts of the text that you have shadowed correctly with a straight line. Underline those parts incorrectly shadowed with a wavy line, thus  .
Then compare estimate for following with performance for shadowing.

I don't th, I wouldn't do any of the erm, normal th, I mean, I would definitely spend it to fulfil all my fantasies in my remaining years. No doubt about that whatsoever. Er, make sure that I was really happy doing it, and, which means other people doing it as well. Okay, well, not the sort of yacht. I mean the last thing I would want would be a yacht, because that would bring problems like who's going to drive it and where you're going to keep it and so on//

Erm, so I don't want anything that brings problems like that and, and, not any of the, sort of really Hollywood fantasies, like sunken baths and so on, erm, I would, erm get another house because with that amount of money you could get just the house you, you really wanted. And it would have a basement which wasn't a cellar, if you see the difference and there, there, we, we we could have, erm, I would definitely have a cinema room and buy Hollywood movies. That would be real luxury .....

UNDERLINE/PRACTISE/COMPARE STRESS: Passage C

Listen to Passage C again. Underline louder or clearer words or parts of words. Practise reading the way you have marked the text while listening to the recording. They should be simultaneous.

Ask your teacher to listen to your final recording.

STRESS ON LISTENING

Set 2. Unit 3.

Pace : 60 beats per minute Space : 3 - 1

A. Static Practice Passage A.

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly and clearly.

details programmes tonight forty evening followed
scotland fifty wildlife visit breeding species only
seven latest early mid-evening reporting nationwide
thirty-five regular introduced festival edinburgh

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice Passage A.

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear more loudly or clearly.

hear are some details of programmes tonight on BBC One at five-forty the early evening news followed at five to six by reporting scotland then nationwide at six fifty wildlife on one takes us up the nile to visit the breeding ground of a rare species of bird only found in this part of the world at seven thirty-five we have our regular look at the latest hits in top of the pops introduced this week by ed stewart and that's followed at eight o'clock by festival an hour long programme

Set 2. Unit 3. (cont'd)

of the pick of the edinburgh festival this year the mid-evening news is at nine o'clock and those are the programmes for the early part of the evening on BBC One scotland

(107 words)

PRACTISE STRESS: Practise reading the text the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.

Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your recording.

Set 2. Unit 3. (cont'd)

A. Static Practice Passage B.

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

today football visit glasgow bristol matches hundred thousand ascot races lastly boxing albert london exciting afternoon manchester important championship

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice Passage B.

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear more loudly or clearly.

well we have an exciting afternoon of sport on ITV today first there's football with visits to glasgow manchester and bristol for the important matches there today then we have golf from the new course in the south of spain with a prize of one hundred thousand dollars from there we go to ascot for three races and lastly boxing from the royal albert hall in london the whole of last night's fight for the world championship and that's this afternoon's exciting sport here on ITV
(85 words)

Set 2. Unit 3. (cont'd)

PRACTISE STRESS: Practise reading the text the way that you have marked it.

COMPARE STRESS: Mark pauses or breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your recording.

C. Intelligibility Practice Passage C.

LISTEN AND FOLLOW: Listen to the following passage and try to decide how well you can follow the language of the passage.

		Words 1 - 100	Words 101 - 20
100%	able to follow completely	:	
75%	able to follow almost completely but with some omissions	:	
50%	able to follow about half or more of the passage but with frequent omissions	:	
25%	only able to follow occasionally, that is, as a few words and phrases	:	
0%	barely able to follow. Just an occasional word or phrase	:	

COMMENTS:

STRESS ON LISTENING

Set 2. Unit 4.

Pace : 60 beats per minute Space : 3 - 1

A. Static Practice Passage A.

UNDERLINE STRESS: Listen and underline the part of each word which you hear more loudly or clearly.

basis diet because balanced added amount perhaps basic deadly poison along potatoes example cereals vegetables

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors and practise again.

B. Dynamic Practice Passage A.

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear more loudly or clearly.

well the basis of our diet is grains cereals that kind of thing because they are the most balanced food for man to eat and then added to that one eats vegetables er and fruits and a small amount of meat perhaps but not really a great deal meat tends to be the basic food for modern man in the west you know along with potatoes and that kind of thing which isn't really very good potatoes for example come from the same family as a deadly poison
(86 words)

Set 2. Unit 4. (cont'd)

PRACTISE STRESS: Practise reading the text in the way that you have marked it.

COMPARE STRESS: Mark pauses and breaks, record your reading while following the first recording then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to your final recording.

Set 2. Practice 4. (cont'd)

A. Intelligibility Practice : Passage B

LISTEN AND FOLLOW: Listen to the passage and decide how well you can follow the language of the passage. Use the list below to help you to decide:

100% : able to follow completely

75% : able to follow almost completely but with some omissions

50% : able to follow about half or more of the passage but with frequent omissions

25% : only able to follow occasionally, that is, as a few words or phrases

0% : barely able to follow. Just an occasional word or phrase

COMMENTS:

B. LISTEN AND SHADOW : Listen and record what you hear as you hear it. If you miss a word or phrase, do not stop, but go on until the end. Check the recording with the text.

C. LISTEN AND WRITE : The passage has been written out below, but some of the ends of sentences and phrases have been left blank. Complete these as you listen to the passage.

Set 2. Practice 4. (cont'd)

This looks like an ..... look at it examine it take the cap off it has a gold nib write ..... then you'll see that the parker one ..... smoother finer it writes ..... that's because the parker one hundred has a new and revolutionary system which ensures a smooth flow of ink ..... the parker one hundred is now in ..... try the parker one hundred ..... the parker one hundred .....

CHECK WRITING: Use your knowledge of English to check carefully whether you have included all the unstressed words. You may not be able to hear them clearly, or even hear them at all, but you should include them IF YOU WOULD EXPECT TO HEAR THEM FROM YOUR KNOWLEDGE OF ENGLISH GRAMMAR.

MARK WRITING: When you are satisfied with your performance, turn over to correct your version using the master copy.

Set 2. Practice 4. (cont'd)

D. Static Practice : Passage B.

UNDERLINE STRESS: Listen and underline the part of each word which you think is spoken with greater effort or energy.

lightness parker hundred smoother finer other because system ensures climates ladies ordinary altitudes revolutionary

PRACTISE STRESS: Practise reading the words while listening to the recording.

CHECK STRESS: Listen to the second recording and check your underlining. Correct any errors and practise again.

E. Dynamic Practice : Passage B.

UNDERLINE STRESS: Listen and underline each word or part of each word which you hear spoken with greater effort or energy.

this looks like an ordinary pen look at it examine it feel its remarkable lightness take the cap off it has a gold nib write with it then you'll see that the parker one hundred is no ordinary pen smoother finer it writes like no other pen that's because the parker one hundred has a new and revolutionary system which ensures a smooth flow of ink in all climates at all altitudes the parker one hundred is now in shops where fine pens are sold it comes in five styles for ladies and for men try the parker one hundred soon the parker one hundred the fine pen for fine words

(110 words)

PRACTISE STRESS: Practise reading the passage the way that you have marked it.

COMPARE STRESS: Mark pauses and breaks, record your reading while following the first recording, then compare the two recordings.

CHECK STRESS: Listen to the second recording and check your underlining.
Correct any errors, practise with this recording, then re-record with the first recording.

Ask your teacher to listen to this recording.

A. Intelligibility Practice : Passage C.

LISTEN AND FOLLOW: Listen to the dialogue and decide how well you can follow the language used by the two speakers. Use the same list as Passage B. to help you to decide: 100% - 75% - 50% - 25% - 0%

LISTEN AND SHADOW: Listen and record what you hear as you hear it. If you miss a word or phrase, do not stop, but go on until the end. Check the recording with the text on the next page.

Set 2. Practice 4. (cont'd)

CHECK SHADOWING: Passage C.

Listen to your recording and underline those parts of the text that you have shadowed correctly with a straight line ————————.
Underline parts shadowed incorrectly with a wavy line ∿∿∿.
Then compare your estimate for FOLLOWING with your performance for SHADOWING.
Some words have been left out. Complete the blank spaces and check from the list below the test. Each word can be used only once.

A : There's only one way ..... dealing ..... the traffic problem only one.
B : You tell ..... then.
A : Separate the pedestrians ..... the motorists .... course don't let them mix ..... all.
B : Oh, that old idea it's ..... impractical.
A : What do you mean ..... old idea it's ..... been tried yet and then only in one or two of the ..... towns never in ..... major city of course it's easier to do ..... in the new towns which have been specially built.
B : Why what's ..... difference.
A : Well really ..... already more traffic in the big cities imagine it .... london let's take oxford street .... you like.
B : Don't ..... ridiculous.
A : ..... ridiculous about that ..... perfectly serious you're just pouring ..... water ..... the idea.

CHECK BLANK SPACES: Check the words you have put in the blank spaces with the list below. Each word has been left out only once:
on of hardly from at quite it cold be there's what I'm with of a in us that the new if
Ask your teacher to check when you have finished both exercises.

Appendix VI.2 TEST

You are going to hear the passage of English which you will see below. There are several different speakers. The ends of some sentences have been left blank. As you listen, try to complete these sentences with the words that you hear. There will be a short pause after each blank space for you to complete the sentence. If you do not hear all the words, write those which you do hear in the blank space. REMEMBER TO WORK QUICKLY.

"This is how the 'Listeners' programme called 'Homes and Gardens' starts. When we bought our flat we had absolutely nothing except a bed and a cooker which was in - which we bought with the flat (yes) and we didn't have anything else//

What that young couple had in fact was a house that was not yet a home // Still at least they had a house and in this programme we listen to people talking about different sorts of houses and homes//

That was Brian Redhead who presents the 'Listeners' programmes. But before you heard him you heard a young woman talking about her new flat//

She isn't an actress, she wasn't reading her words from a script, she wasn't told what to say, she was just talking naturally//

Talking, in fact, like a native speaker of English in ordinary conversation. Hesitating, making mistakes, getting interrupted by other speakers//

If you find that sort of English difficult to understand the 'Listeners' can help you, because 'Listeners' are listening programmes recorded by ordinary English men and women using English the way they use it when they talk to each other// Using it naturally and by listening to the 'Listeners' programmes and doing the exercises in the books, you'll come to understand natural spoken English yourself. Let's see how this works. Here's another extract from 'Homes and Gardens' in which a woman called Liz describes her modern house a few miles outside London // One of the exercises

Appendix VI.2 (cont'd)

in the book asks you to listen carefully to Liz and find out what rooms she has on each floor of her house ..... // So, as you're listening now see if you can understand what rooms she has on the ground floor of her house ..... // Here she is.

It's a three floored house with a small garden at the back; the garden at the front is very small and in fact forms part of the gardens which belong to the whole of the estate. We have our own garage and driveway at the front of the house as you enter through the front door, you go into a hall where you can get into the garage to the left and then as you go into the hall further down, you'll find the kitchen and the dining-room ..... // The main living area in fact of the house. The dining-room opens up onto the rear garden so that the children can get in and out during the day-time quite freely ..... //

Appendix VI.3

Subjects attendance on Test Course

Subject	Sessions attended	regular/irreg. attendance	pre-/post tests
S.1 Adrian C.	23	very regular	Yes
S.2 Claudio C.	16	ill for one week	Yes
S.3 Connie Leung	16	regular	Yes
S.4 Kayoko Michikani	20	regular	Yes
S.5 Isam Kadhim	10	irregular	Yes
S.6 Yousef Mohamed	19	regular	Yes
S.7 Gamal Nagi	20	regular	Yes
S.8 Mina Nasirai	21	regular	Yes
S.9 Terry Cheung	11	irregular	Yes
S.10 Yoko Azumi	20	regular	Yes
S.11 Ahmed Ali	20	regular	Yes
S.12 Catherine Brouard	16	missed first week	Yes

Other Subjects

Michael Matarcargas	10	stopped - inconvenient for host family	pre-only
Al Mualla	14	stopped after Test 1.	pre-only
Truong Dich Nam	1		pre-only
Chan	1		pre-only
Ahmed Alawi	10	irregular	pre-only
Abu Sabra	20	regular	pre-only
Fadhel	10	stopped attending	pre-only
Truong Dich Hue	2		pre-only

Average attendance for Test Group subjects : 17.6 hours.

Appendix VI.4

Subjects' scores : Pre-course test and Nelson Quick-Check Test

Test	Pre-course test	Nelson Quick-Check test
S. 1	17	25
S. 2	19	14
S. 3	19	42
S. 4	31	40
S. 5	35	33
S. 6	37	39
S. 7	37	37
S. 8	39	28
S. 9	40	44
S. 10	44	56
S. 12	51	64
Control		
S. 13	17	32
S. 14	21	26
S. 15	23	67
S. 16	26	25
S. 17	29	2
S. 18	35	51
S. 19	42	51
S. 20	42	48
S. 21	43	66
S. 22	44	50
S. 23	45	44
S. 24	49	45

Appendix VI.5

Internal Reliability

Subject	Scores		Ranks		d	d^2
	odd	even	odd	even		
S. 1	11	6	5	1	4	16
S. 2	8	11	1.5	3.5	2	4
S. 3	13	12	6	5.5	.5	.25
S. 4	18	13	9	8	1	1
S. 5	19	16	10	13.5	3.5	12.25
S. 6	22	15	15	12	3	9
S. 7	21	16	11.5	13.5	2	4
S. 8	22	17	15	15.5	.5	.25
S. 9	21	19	11.5	17.5	6	36
S. 10	22	22	15	22.5	7.5	56.25
S. 11	24	20	18.5	20	1.5	2.25
S. 12	28	23	23.4	24	.5	.25
S. 13	9	8	3.5	2	1.5	2.25
S. 14	8	13	1.5	8	6.5	42.25
S. 15	9	14	3.5	10.5	7	49
S. 16	15	11	7	3.5	3.5	12.25
S. 17	17	12	8	5.5	2.5	6.25
S. 18	22	13	15	8	7	49
S. 19	28	14	23.5	10.5	13	156
S. 20	22	20	15	20	5	25
S. 21	24	19	18.5	17.5	1	1
S. 22	27	17	21.5	15.5	6	36
S. 23	25	20	20	20	0	0
S. 24	27	22	21.5	22.5	1	1
						$\sum d^2$ 521.5

$$r_{\frac{1}{2}\frac{1}{2}} = 1 - \frac{6 \times 521.5}{24(24^2 - 1)}$$

$$= \underline{0.77}$$

$$r_{11} = \frac{2 \times 0.77}{1 + 0.77}$$

$$= \underline{0.87}$$

Appendix VI.6

Comparisons

Test Group : pre-course test vs. post-course test.

Subject	pre-	post-	d	d^2
S. 1	17	29	12	144
S. 2	19	22	3	9
S. 3	25	30	5	25
S. 4	31	41	10	100
S. 5	35	41	6	36
S. 6	37	46	9	81
S. 7	37	55	18	324
S. 8	39	49	10	100
S. 9	40	40	0	0
S. 10	44	46	2	4
S. 11	44	54	10	100
S. 12	51	59	8	64
			Σd 93	Σd^2 987

$\bar{d} = 7.75$

$$t = \bar{d} \div \sqrt{\frac{987 - \frac{(93)^2}{12}}{12 \times 11}}$$

$$= \frac{7.75}{1.42}$$

$$= \underline{5.46}$$ (t = 3.11 at the one per cent level of significanc with 11 df for a two tailed test)

Control Group : pre-course test vs. post-course test.

Subject	pre-	post-	d	d^2
S. 13	17	27	10	100
S. 14	21	39	18	324
S. 15	23	23	0	0
S. 16	26	26	0	0
S. 17	29	33	4	16
S. 18	35	36	1	1
S. 19	42	50	8	64
S. 20	42	51	9	81
S. 21	43	43	0	0
S. 22	44	53	9	81
S. 23	45	38	-7	49
S. 24	49	63	14	196
			Σd 66	Σd^2 912

$\bar{d} = 5.5$

$$= \bar{d} \sqrt{\frac{912 - \frac{(66)^2}{12}}{12 \times 11}} = \frac{5.5}{2.04}$$

$$= \underline{2.70}$$ (t = 2.201 at the five per cent significance

Appendix VI.7

t test independent-subject design : Control vs. Test Group post-course test scores compared.

(For descriptive statistics on sums of scores see Chapter Seven above)

Test Group	Control Group
$\Sigma x_2 = 512$	$\Sigma y_2 = 482$
$\bar{x}_2 = 42.7$	$\bar{y}_2 = 40.2$
$\Sigma x_2^2 = 23242$	$\Sigma y_2^2 = 21012$
$\Sigma x_2^2 - \frac{(\Sigma x_2)^2}{12}$	$\Sigma y_2^2 - \frac{(\Sigma y_2)^2}{12}$
$= 1397$	$= 1652$

$$\frac{1397 + 1652}{22} = 138.6$$

$$138.6 \times \left(\frac{1}{12} + \frac{1}{12}\right) = 23.14$$

$$\sqrt{23.14} = 4.8$$

$$\bar{x}_2 - \bar{y}_2 = 2.5$$

$$t = \frac{2.5}{4.8}$$

$$= 0.52$$

---

t = 2.074 at the five per cent level of significance with 22 df for a two-tailed test.

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